

July 22, 2003

Mr. Steve Trent Fluor Hanford Inc. 825 Jadwin Avenue Richland, WA 99352

Reference:

P.O. #630

Eberline Services R3-06-005-7529, SDG H2250

Dear Mr. Trent:

Enclosed is the data report for four solid samples designated under SAF No. F03-006 received at Eberline Services on June 2, 4, and 6, 2003. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion

Melen Mamm

Program Manager

MCM

Enclosure: Data Package

RECEIVED NOV 2 4 2003

EDMC

Page 1 of 2

1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H2250 was composed of four solid (soil) samples designated under SAF No. F03-006 with a Project Designations of: 200-PW-2/200-PW-4 OU – Borehole Soil Sampling.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.5 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.6 lodine-129 Analyses

No problems were encountered during the course of the analyses.

2.7 Isotopic Thorium Analyses

No problems were encountered during the course of the analyses.

2.8 Isotopic Uranium Analyses

The U samples in SDG H2250 were batched with the U samples in SDG H2242 (Group R305191-7528). No problems were encountered during the course of the analyses.

2.9 Total Uranium Analyses

No problems were encountered during the course of the analyses.

Page 2 of 2

2.10 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

2.11 Isotopic Plutonium Analyses

The Pu samples were reanalyzed because samples B17124 and B17115 in SDG H2242 (Group R305191-7528) contaminated the Pu samples in SDG H2250. The data from the reanalysis of the Pu samples is reported herein. The Pu-239/240 RPD between sample B17122 and its sample duplicate was 117%, greater than the contract limit of 35%. Sample B17122 and its sample duplicate were recounted, but the Pu-239/240 RPD was not improved. Eberline Services will reanalyze the sample if requested by FHI. No other problems were encountered during the course of the reanalyses.

2.12 Americium-241 Analyses

Due to a low yield (12%) sample B17122 was reworked in chemistry. The data from the rework is reported herein. No other problems were encountered during the course of the analyses.

The Am-241 samples in SDG H2250 were batched with the Am-241 samples in SDG H2242 (Group R305191-7528).

2.13 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa C. Mannion

Program Manager

7/22/5

Date

E B E R L I N E S E R V I C E S / R I C H M O N D SAMPLE DELIVERY GROUP H2250

SDG <u>7529</u> Contact <u>Melissa C. Mannion</u> Client Hanford
Contract No. 630
Case no SDG_H2250

SUMMARY DATA SECTION

TABLE OF	C O	N T	E N	T S	
About this section	•	-	•	•	1
Sample Summaries	•	•	•	•	3
Prep Batch Summary	•				5
Work Summary	•	•	•	-	6
Method Blanks	•	•		•	10
Lab Control Samples	•	•	٠	•	15
Duplicates	•	•	•	•	18
Matrix Spikes	•	•		•	21
Data Sheets	•	•	•	•	22
Method Summaries	•	•			28
Report Guides	•	•	•	•	45
End of Section		•	•		59
				_	

/	1	w	w	n	N	ar	<i>m</i>

Prepared by

Melin Mann

Reviewed by

SAMPLE DELIVERY GROUP H2250

SDG 7529
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hani	ford	
Contract	No.	630	
Case no	SDG	H2250	

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

REPORT GUIDES

Page 1

SUMMARY DATA SECTION

Page 1

SAMPLE DELIVERY GROUP H2250

SDG 7529
Contact Melissa C. Mannion

GUIDE, cont.

Client	Han:	ford	
Contract	No.	630	
Case no	SDG	H2250	

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

REPORT GUIDES
Page 2
SUMMARY DATA SECTION
Page 2

SAMPLE DELIVERY GROUP H2250

SDG 7529 Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford Contract No. 630 Case no SDG H2250

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R305191-05	Lab Control Sample	· ··-	SOLID	F03-006		
R305191-06	Method Blank		SOLID	F03-006		
R306005-01	B17122	216-A-10 (C3247)	SOLID	F03-006	F03-006-107	05/27/03 11:10
R306005-02	817188	216-B-12 (C3246)	SOLID	F03-006	F03-006-134	05/29/03 12:50
R306005-03	B171C1-B	216-B-12 (C3246)	SOLID	F03-006	F03-006-179	06/03/03 10:15
R306005-04	817218-B	216-B-12 (C3246)	SOLID	F03-006	F03-006-179	06/03/03 10:15
R306005-05	Lab Control Sample		SOLID	F03-006		
R306005-06	Method Blank		SOLID	F03-006		
R306005-07	Duplicate (R306005-01)	216-A-10 (C3247)	SOLID	F03-006		05/27/03 11:10
R306005-08	Spike (R306005-01)	216-A-10 (C3247)	SOLID	F03-006		05/27/03 11:10
R306005-09	Lab Control Sample		SOLID	F03-006		
R306005-10	Method Blank		SOLID	F03-006		
R306005-11	Duplicate (R306005-01)	216-A-10 (C3247)	SOLID	F03-006		05/27/03 11:10

LAB SUMMARY Page 1 SUMMARY DATA SECTION Page 3

Lab id EBRLNE Protocol <u>Hanford</u> Version <u>Ver 1.0</u> Form DVD-LS Version 3.06 Report date <u>07/21/03</u>

SDG 7529 Contact <u>Melissa C. Mannion</u>

QC SUMMARY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2250</u>

QC BATCK	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS S		LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7528		Method Blank Lab Control Sample	SOLID						R305191-06 R305191-05	7528-006 7528-005
7529	F03-006-107	B17122	SOLID	89.0	167.6 g		06/06/03	10	R306005-01	7529-001
	F03-006-134	B171B8	SOLID	95.0	184.7 g		06/06/03	8	R306005-02	7529-002
	F03-006-179	B171C1-B B17218-B	SOL ID		152.4 g 148.2 g		06/06/03 06/06/03	3 3	R306005-03 R306005-04	7529-003 7529-004
		Method Blank Method Blank Lab Control Sample Lab Control Sample Duplicate (R306005-01) Duplicate (R306005-01) Spike (R306005-01)	SOLID SOLID SOLID SOLID SOLID SOLID	89.0	167.6 g 167.6 g 167.6 g		06/06/03 06/06/03 06/06/03	10 10 10	R306005-06 R306005-10 R306005-05 R306005-09 R306005-07 R306005-11 R306005-08	7529-006 7529-010 7529-005 7529-009 7529-007 7529-011 7529-008

QC SUMMARY
Page 1
SUMMARY DATA SECTION
Page 4

SDG <u>7529</u> Contact <u>Melissa C. Mannion</u>

PREP BATCH SUMMARY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2250</u>

			PREPARATION	ERROR			- PLA	NCHETS A	ANALYZ	'ED	QUAL I -
TEST	MATRIX	METHOD	BATCH		CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG MS/ORIG	FIERS
Alpha	Spectros	сору	•								•
AM	SOLID	Americium 241 in Soil	7071-037	5.0	2			1	1	1/1	
NP	SOLID	Neptunium in Soil	7071-044	5.0	4			1	1	1/1	
PU	SOLID	Plutonium, Isotopic in Solids	7071-044	5.0	2			1	1	1/1	
TH	SOLID	Thorium, Isotopic in Soil	7071-044	5.0	4			1	1	1/1	
U	SOLID	Uranium, Isotopic in Soil	7071-037	5.0	2			1	1	1/1	
Beta	Counting										
SR	SOLID	Total Strontium in Soil	7071-044	10.0	4			1	1	1/1	
TC	SOLID	Technetium 99 in Soil	7071-044	10.0	4			1	1	1/1	
Gamma	Spectros	сору									
GAM	SOLID	Gamma Scan	7071 - 044	15.0	2			1	1	1/1	
I	SOLID	lodine 129 in Soil	7071-044	10.0	4			1	1	1/1	
Kinet	ic Phosph	orimetry (KPA)									
U_T	SOLID	Uranium, Total in Soil	7071-044	9.0	2			1	1	1/1	
Liqui	d Scintil	lation Counting									
C	SOLID	Carbon 14 in Soil	7071-044	10.0	4			1	1	1/1	
Н	SOLID	Tritium in Soil	7071-044	10.0	4			1	1	1/1 1/1	x
NI_L	SOLID	Nickel 63 in Soil	7071-044	10.0	4			1	1	1/1	

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group. Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

PREP BATCH SUMMARY
Page 1
SUMMARY DATA SECTION
Page 5

SAMPLE DELIVERY GROUP H2250

SDG 7529 Contact Melissa C. Mannion

LAB WORK SUMMARY

Client <u>Hanford</u> Contract No. 630 Case no SDG H2250

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE I LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	ву	METHOD
R305191-05	Lab Control Sam	ple		7528-005	АМ		07/02/03	07/17/03	мсм	Americium 241 in Soit
			SOLID	7528-005	U		07/08/03	07/17/03	MCM	Uranium, Isotopic in Soil
		F03-006								
R305191-06	Method Blank			7528-006	АМ		07/02/03	07/17/03	MCM	Americium 241 in Soil
1,303171 00			SOLID	7528-006	U		07/08/03	07/17/03	MCM	Uranium, Isotopic in Soil
		F03-006								
R306005-01	B17122			7529-001	АМ		07/02/03	07/21/03	MCM	Americium 241 in Soil
05/27/03	216-A-10 (C3247)	SOLID	7529-001	С		07/09/03	07/21/03	MCM	Carbon 14 in Soil
06/06/03	F03-006-107	F03-006		7529-001	GAM		06/22/03	07/21/03	MCM	Gamma Scan
·				7529-001	H		07/03/03	07/21/03	MCM	Tritium in Soil
				7529-001	I		07/08/03	07/21/03	MCM	Iodine 129 in Soil
				7529-001	NI_L		07/09/03	07/21/03	MCM	Nickel 63 in Soil
				7529-001	NP		07/10/03	07/21/03	MCM	Neptunium in Soil
				7529-001	PU	A1	07/19/03	07/21/03	MCM	Plutonium, Isotopic in Solids
				7529-001	SR		07/02/03	07/21/03	MCM	Total Strontium in Soil
				7529-001	TC		07/06/03	07/21/03	MCM	Technetium 99 in Soil
				7529-001	TH	R1	07/18/03	07/21/03	MCM	Thorium, Isotopic in Soil
				7529-001	U		07/08/03	07/21/03	MCM	Uranium, Isotopic in Soil
				7529-001	U_T		06/19/03	07/21/03	MCM	Uranium, Total in Soil
R306005-02	B171B8			7529-002	AM		07/02/03	07/21/03	MCM	Americium 241 in Soil
05/29/03	216-B-12 (C3246)	SOLID	7529-002	С		07/10/03	07/21/03	MCM	Carbon 14 in Soil
06/06/03	F03-006-134	F03-006		7529-002	GAM		06/22/03	07/21/03	MCM	Gamma Scan
				7529-002	Н		07/03/03	07/21/03	MCM	Tritium in Soil
				7529-002	I		07/09/03	07/21/03	MCM	Iodine 129 in Soil
				7529-002	NI_L		07/09/03	07/21/03	MCM	Nickel 63 in Soil
				7529-002	NP		07/10/03	07/21/03	MCM	Neptunium in Soil
				7529-002	PU	A1	07/18/03	07/21/03	MCM	Plutonium, Isotopic in Solids
				7529-002	SR		07/02/03	07/21/03	MCM	Total Strontium in Soil
				7529-002	TC		07/04/03	07/21/03	MCM	Technetium 99 in Soil
				7529-002	TH		07/11/03	07/21/03	MCM	Thorium, Isotopic in Soil
				7529-002	U		07/08/03	07/21/03	MCM	Uranium, Isotopic în Soil
				7529-002	U_T		06/19/03	07/21/03	MCM	Uranium, Total in Soil

WORK SUMMARY Page 1 SUMMARY DATA SECTION Page 6

Lab id EBRLNE Protocol <u>Hanford</u> Version Ver 1.0 Form DVD-LWS Version 3.06 Report date <u>07/21/03</u>

SAMPLE DELIVERY GROUP H2250

SDG <u>7529</u> Contact <u>Melissa C. Mannion</u>

WORK SUMMARY, cont.

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2250</u>

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE II LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	ву	METHOD
R306005-03	B171C1-B		*	7529-003	С		07/10/03	07/21/03	MCM	Carbon 14 in Soil
06/03/03	216-B-12 (C3246))	SOLID	7529-003	Н		07/03/03	07/21/03	MCM	Tritium in Soil
06/06/03	F03-006-179	F03-006		7529-003	1		07/09/03	07/21/03	MCM	lodine 129 in Soil
				7529-003	NI_L		07/09/03	07/21/03	MCM	Nickel 63 in Soil
				7529-003	NP		07/10/03	07/21/03	MCM	Neptunium in Soil
				7529-003	SR		07/02/03	07/21/03	MCM	Total Strontium in Soil
				7529-003	TC.		07/05/03	07/21/03	MCM	Technetium 99 in Soil
				7529-003	TH		07/11/03	07/21/03	MCM	Thorium, Isotopic in Soil
306005-04	В17218-В			7529-004	С		07/10/03	07/21/03	MCM	Carbon 14 in Soil
06/03/03	216-B-12 (C3246))	SOLID	7529-004	Н		07/03/03	07/21/03	MCM	Tritium in Soil
06/06/03	F03-006-179	F03-006		7529-004	I		07/10/03	07/21/03	MCM	Iodine 129 in Soil
				7529-004	NI_L		07/09/03	07/21/03	MCM	Nickel 63 in Soil
				7529-004	NP		07/10/03	07/21/03	MCM	Neptunium in Soil
				7529-004	SR		07/02/03	07/21/03	MCM	Total Strontium in Soil
				7529-004	TC		07/04/03	07/21/03	MCM	Technetium 99 in Soil
				7529-004	TH		07/11/03	07/21/03	MCM	Thorium, Isotopic in Soil
306005-05	Lab Control Samp	ole		7529-005	С		07/10/03	07/21/03	MCM	Carbon 14 in Soil
			SOLID	7529-005	GAM		06/22/03	07/21/03	MCM	Gamma Scan
		F03-006		7529-005	Н		07/03/03	07/21/03	MCM	Tritium in Soil
				7529-005	1		07/10/03	07/21/03	MCM	Iodine 129 in Soil
				7529-005	NI_L		07/04/03	07/21/03	MCM	Nickel 63 in Soil
				7529-005	NP		07/10/03	07/21/03	MCM	Neptunium in Soil
				7529-005	SR		07/02/03	07/21/03	MCM	Total Strontium in Soil
				7529-005	TC		07/04/03	07/21/03	MCM	Technetium 99 in Soil
				7529-005	TH		07/11/03	07/21/03	MCM	Thorium, Isotopic in Soil
				7529-005	U_T		06/19/03	07/21/03	МСМ	Uranium, Total in Soil
306005-06	Method Blank			7529-006	С		07/09/03	07/21/03	МСМ	Carbon 14 in Soil
			SOLID	7529-006	GAM		06/22/03	07/21/03	MCM	Gamma Scan
		F03-006		7529-006	Ħ		07/03/03	07/21/03	MCM	Tritium in Soil
				7529-006	I			07/21/03	MCM	Iodine 129 in Soil
				7529-006	NI_L		07/04/03	07/21/03	MCM	Nickel 63 in Soil
				7529-006	NP		07/10/03	07/21/03	MCM	Neptunium in Soil
				7529-006	SR		07/02/03	07/21/03	MCM	Total Strontium in Soil
				7529-006	TC		07/04/03	07/21/03	MCM	Technetium 99 in Soil
				7529-006	TH		07/11/03	07/21/03	MCM	Thorium, Isotopic in Soil
				7529-006	U_T		06/19/03	07/21/03	MCM	Uranium, Total in Soil

WORK SUMMARY
Page 2
SUMMARY DATA SECTION
Page 7

Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LWS</u>

Version <u>3.06</u>

Report date <u>07/21/03</u>

SDG 7529 Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2250</u>

CLIENT SAMPLE ID								
LOCATION CUSTODY SAF No	MATRIX	PLANCHET	TEST			REVIEWED	ВҮ	METHOD
Duplicate (R306005-01)		7529-007	АМ		07/03/03	07/21/03	мсм	Americium 241 in Soil
216-A-10 (C3247)	SOLID	7529-007	C		07/10/03	07/21/03	MCM	Carbon 14 in Soil
F03-006		7529-007	GAM		06/22/03	07/21/03	MCM	Gamma Scan
		7529-007	H		07/03/03	07/21/03	MCM	Tritium in Soil
		7529-007	I		07/11/03	07/21/03	MCM	Iodine 129 in Soil
		7529-007	NI_L		07/04/03	07/21/03	MCM	Nickel 63 in Soil
		7529-007	NP		07/10/03	07/21/03	MCM	Neptunium in Soil
		7529-007	SR		07/02/03	07/21/03	MCM	Total Strontium in Soil
		7529-007	TC		07/05/03	07/21/03	MCM	Technetium 99 in Soil
		7529-007	TH		07/11/03	07/21/03	MCM	Thorium, Isotopic in Soil
		7529-007	U		07/08/03	07/21/03	MCM	Uranium, Isotopic in Soil
		7529-007	U_T		06/19/03	07/21/03	MCM	Uranium, Total in Soil
Spike (R306005-01)		7529-008	Н		07/04/03	07/21/03	MCM	Tritium in Soil
216-A-10 (C3247)	SOL ID							
F03-006								
Lab Control Sample		7529-009	PU		07/18/03	07/21/03	мсм	Plutonium, Isotopic in Solids
	SOLID							
F03-006								
Method Blank		7529-010	PU		07/18/03	07/21/03	MCM	Plutonium, Isotopic in Solids
•	SOLID							·
F03-006								
Duplicate (R306005-01)		7529-011	PU		07/19/03	07/21/03	мсм	Plutonium, Isotopic in Solids
216-A-10 (C3247)	SOLID							- ·
F03-006								
	LOCATION CUSTODY SAF No Duplicate (R306005-01) 216-A-10 (C3247) F03-006 Spike (R306005-01) 216-A-10 (C3247) F03-006 Lab Control Sample F03-006 Method Blank F03-006 Duplicate (R306005-01) 216-A-10 (C3247)	Duplicate (R306005-01) 216-A-10 (C3247) F03-006 SOLID F0	LOCATION CUSTODY SAF No PLANCHET Duplicate (R306005-01) 7529-007 216-A-10 (C3247) SOLID 7529-007 7529	Duplicate (R306005-01) T529-007 AM	LOCATION CUSTODY SAF No Duplicate (R306005-01) 216-A-10 (C3247) F03-006 F03-006 Solid F03-007 Solid F03-006 Method Blank F03-006 Duplicate (R306005-01) F03-006 Solid F03-006 Solid F03-006 Solid F03-006 Duplicate (R306005-01) F03-006 Solid F03-006 PU Solid F03-006	LOCATION CUSTODY SAF No	LOCATION CUSTODY SAF NO MATRIX PLANCHET TEST FIX ANALYZED REVIEWED DUPLICATE (R306005-01) 216-A-10 (C3247) SOLID 7529-007 AM 07/03/03 07/21/03 07/	DUDLICATION CUSTODY SAF NO

WORK SUMMARY
Page 3
SUMMARY DATA SECTION
Page 8

Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LWS</u>

Version <u>3.06</u>

Report date <u>07/21/03</u>

SDG <u>7529</u> Contact <u>Melissa C. Mannion</u>

WORK SUMMARY, cont.

Client	Hanford
Contract	No. 630
Case no	SDG_H2250

TEST	SAF No	COUNTS OF	TESTS BY SAM REFERENCE	PLE TYPE CLIENT MORE	RE BLANK	LCS	DUP SPIKE	TOTAL
AM	F03-006	Americium 241 in Soil	AMCMISO_IE_PLATE_AEA	2	1	1	1	5
С	F03-006	Carbon 14 in Soil	C14_COX_LSC	4	1	1	1	7
GAM	F03-006	Gamma Scan	GAMMA_GS	2	1	1	1	5
Н	F03-006	Tritium in Soil	906.0_H3_LSC	4	1	1	1 1	8
I	F03-006	lodine 129 in Soil	I 129_SEP_LEPS_GS	4	1	1	1	7
NI_L	F03-006	Nickel 63 in Soil	N163_LSC	4	1	1	1	7
NP	F03-006	Neptunium in Soil	NP237_LLE_PLATE_AEA	4	1	1	1	7
PU	F03-006	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	2	1	1	1	5
SR	F03-006	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	4	1	1	1	7
TC	F03-006	Technetium 99 in Soil	TC99_TR_SEP_LSC	4	1	1	1.	7
TH	F03-006	Thorium, Isotopic in Soil	THISO_IE_PLATE_AEA	4	1	1	1	7
U	F03-006	Uranium, Isotopic in Soil	UISO_PLATE_AEA	2	1	1	1	5
U_T	F03-006	Uranium, Total in Soil	UTOT_KPA	2	1	1	1	5
TOTALS	-			42	13	13	13 1	82

WORK SUMMARY
Page 4
SUMMARY DATA SECTION
Page 9

Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LWS</u>

Version <u>3.06</u>

Report date <u>07/21/03</u>

7528-006

METHOD BLANK

Method Blank

	7529 Melissa C. Mannion	Client/Case no Contract	 SDG_H2250
Lab sample id Dept sample id		Client sample id Material/Matrix SAF No	SOLID

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	N.A.			400		Н
Carbon 14	14762-75-5	N.A.			50		C
Nickel 63	13981-37-8	N.A.			30		NI L
Total Strontium	SR-RAD	N.A.			1.0		SR
Technetium 99	14133-76-7	N.A.			15		TÇ
Thorium 228	14274-82-9	N.A.					TH
Thorium 230	14269-63-7	N.A.			1.0		TH
Thorium 232	TH-232	N.A.			1.0		TH
Total Uranium (ug/g)	7440-61-1	N.A.			1.0		U_T
Uranium 233/234	U-233/234	0	0.043	0.16	1.0	U	บ
Uranium 235	15117-96-1	0	0.052	0.20	1.0	ប	U
Uranium 238	U-238	0	0.043	0.16	1.0	U	U
Neptunium 237	13994-20-2	N.A.			1.0		NP
Americium 241	14596-10-2	0	0.053	0.20	1.0	Ŭ	AM
Iodine 129	15046-84-1	N.A.			2.0		I
Potassium 40	13966-00-2	N.A.					GAM
Cobalt 60	10198-40-0	N.A.			0.050		GAM
Tin 126	15832-50-5	N.A.					GAM
Cesium 134	13967-70-9	N.A.					GAM
Cesium 137	10045-97-3	N.A.			0.10		GAM
Radium 226	13982-63-3	N.A.					GAM
Radium 228	15262-20-1	N.A.					GAM
Europium 152	14683-23-9	N.A.			0.10		GAM
Europium 154	15585-10-1	N.A.			0.10		GAM
Europium 155	14391-16-3	N.A.			0.10		GAM
Thorium 228	14274-82-9	N.A.					GAM
Thorium 232	TH-232	N.A.					GAM
Uranium 235	15117-96-1	N.A.					GAM
Uranium 238	U-238	N.A.					G AM

200-PW-2/200-PW-4 OU - Borehole Soil

METHOD BLANKS

Page 1

SUMMARY DATA SECTION

Page 10

7528-006

BLANK, cont.

Method Blank

	7529 Melissa C. Mannion	Client/Case no Contract		SDG H2250
Lab sample id Dept sample id		Client sample id Material/Matrix		SOLID
		SAF No	F03-006	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Americium 241	14596-10-2	N.A.					GAM

200-PW-2/200-PW-4 OU - Borehole Soil

QC-BLANK #44884

METHOD BLANKS
Page 2
SUMMARY DATA SECTION
Page 11

7529-006

METHOD BLANK

Method Blank

	7529 Melissa C. Mannion	Client/Case no Contract	 SDG_H2250
Lab sample id Dept sample id		Client sample id Material/Matrix SAF No	SOLID

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	-0.080	0.17	0.29	400	U	H
Carbon 14	14762-75-5	0.516	1.7	2.8	50	Ŭ	C
Nickel 63	13981-37-8	0	1.1	1.9	30	Ū	$\mathtt{NI}_\mathtt{L}$
Total Strontium	SR-RAD	-0.079	0.12	0.27	1.0	U	SR
Technetium 99	14133-76-7	0.016	0.24	0.52	15	Ū	TC
Thorium 228	14274-82-9	0.026	0.11	0.20		ប	TH
Thorium 230	14269-63-7	0.159	0.16	0.20	1.0	U	TH
Thorium 232	TH-232	0.026	0.053	0.20	1.0	ซ	TH
Total Uranium (ug/g)	7440-61-1	0	0	0.004	1.0	U	U_T
Neptunium 237	13994-20-2	0.011	0.043	0.081	1.0	U	NP
Iodine 129	15046-84-1	0.149	0.33	0.75	2.0	บ	I
Potassium 40	13966-00-2	U		0.91		U	GAM
Cobalt 60	10198-40-0	U		0.054	0.050	บ	GAM
Tin 126	15832-50-5	U		0.053		ซ	GAM
Cesium 134	13967-70-9	U		0.066		U	GAM
Cesium 137	10045-97-3	ប		0.048	0.10	ប	GAM
Radium 226	13982-63-3	Ŭ		0.092		ប	GAM
Radium 228	15262-20-1	U		0.33		U	GAM
Europium 152	14683-23-9	U		0.12	0.10	ប	GAM
Europium 154	15585-10-1	U		0.14	0.10	U	GAM
Europium 155	14391-16-3	U		0.082	0.10	U	GAM
Thorium 228	14274-82-9	U		0.067		ប	GAM
Thorium 232	TH-232	U		0.33		U	GAM
Uranium 235	15117-96-1	υ		0.15		U	GAM
Uranium 238	U-238	σ		6.6		ប	GAM
Americium 241	14596-10-2	U		0.11		υ	GAM

200-PW-2/200-PW-4 OU - Borehole Soil

METHOD BLANKS
Page 3
SUMMARY DATA SECTION
Page 12

7529-006

BLANK, cont.

Method Blank

1	7529 Melissa C. Mannion	Client/Case no Contract		SDG_H2250
Lab sample id Dept sample id		Client sample id Material/Matrix		SOLID
Dept sample id	7327-000	•	F03-006	SOLID

QC-BLANK 44972

METHOD BLANKS
Page 4
SUMMARY DATA SECTION
Page 13

7529-010

METHOD BLANK

Method Blank

1	7529 Melissa C. Mannion	Client/Case no Contract	SDG_H2250
Lab sample id Dept sample id		Client sample id Material/Matrix SAF No	 SOLID

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Plutonium 238 Plutonium 239/240	13981-16-3 PU-239/240	0.042	0.084 0.084	0.32 0.32	1.0	บ บ	PU PU

200-PW-2/200-PW-4 OU - Borehole Soil

QC-BLANK 45091

METHOD BLANKS
Page 5
SUMMARY DATA SECTION
Page 14

SAMPLE DELIVERY GROUP H2250

7528-005

LAB CONTROL SAMPLE

Lab Control Sample

SDG <u>7529</u> Contact <u>Melissa C. Mannion</u>	Client/Case no <u>Hanford SDG H2250</u> Contract <u>No. 630</u>
Lab sample id <u>R305191-05</u> Dept sample id <u>7528-005</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC		PROTOCOL LIMITS
Tritium	N.A.			400		Н					80-120
Carbon 14	N.A.			50		С					80-120
Nickel 63	N.A.			30		NI_L					80-120
Total Strontium	N.A.			1.0		SR					80-120
Technetium 99	N.A.			15		TC					80-120
Thorium 230	N.A.			1.0		TH					80-120
Total Uranium (ug/g)	N.A.			1.0		U_T					80-120
Uranium 233/234	22.2	2.2	0.95	1.0		U	18.6	0.74	119	79-121	80-120
Uranium 235	15.5	1.7	0.23	1.0		U	15.1	0.60	103	81-119	80-120
Uranium 238	22.1	2.2	0.91	1.0		U	20.2	0.81	109	81-119	80-120
Neptunium 237	N.A.			1.0		NP					80-120
Americium 241	18.0	2.0	0.23	1.0		AM	19.0	0.76	95	82-118	80-120
lodine 129	N.A.			2.0		I					80-120
Cobalt 60	N.A.			0.050		GAM					80-120
Cesium 137	N.A.			0.10		GAM					80-120

200-PW-2/200-PW-4 OU - Borehole Soil

QC-LCS #44883				
---------------	--	--	--	--

LAB CONTROL SAMPLES
Page 1
SUMMARY DATA SECTION
Page 15

7529-005

LAB CONTROL SAMPLE

Lab Control Sample

SDG <u>7529</u>	Client/Case no <u>Hanford</u> <u>SDG H2250</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>
Lab sample id <u>R306005-05</u> Dept sample id <u>7529-005</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix <u>SOLID</u> SAF No <u>F03-006</u>

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL
Tritium	13.4	0.41	0.28	400		н	13.8	0.55	97	84-116	80-120
Carbon 14	1860	19	4.3	50		С	1940	78	96	84-116	80-120
Nickel 63	256	5.3	2.3	30		N1_L	274	11	93	84-116	80-120
Total Strontium	22.4	0.98	0.33	1.0		SR	22.0	0.88	102	82-118	80-120
Technetium 99	120	1.9	0.35	15		TC	120	4.8	100	84-116	80-120
Thorium 230	39.8	3.5	0.26	1.0		TH	44.8	1.8	89	85-115	80-120
Total Uranium (ug/g)	18.2	2.1	0.037	1.0		U_T	18.1	0.72	101	77-123	80-120
Neptunium 237	19.1	2.3	0.18	1.0		NP	21.8	0.87	88	82-118	80-120
Iodine 129	138	1.4	1.4	2.0		I	127	5.1	109	83-117	80-120
Cobalt 60	6.48	0.34	0.20	0.050		GAM	6.64	0.27	98	76-124	80-120
Cesium 137	6.76	0.29	0.21	0.10		GAM	6.54	0.26	103	75 - 125	80-120

200-PW-2/200-PW-4 OU - Borehole Soil

LAB CONTROL SAMPLES
Page 2
SUMMARY DATA SECTION
Page 16

SAMPLE DELIVERY GROUP H2250

7529-009

LAB CONTROL SAMPLE

Lab Control Sample

SDG <u>7529</u> Contact <u>Melissa C. Mannion</u>	Client/Case no <u>Hanford SDG H2250</u> Contract <u>No. 630</u>
Lab sample id <u>R306005-09</u> Dept sample id <u>7529-009</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix <u>SOLID</u> SAF No <u>F03-006</u>

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDŁ pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Plutonium 238 Plutonium 239/240	25.7 26.2	3.2 3.3	0.33 0.33	1.0 1.0		PU PU	24.4 26.4	0.98	105 99	78-122 79-121	80-120 80-120

200-PW-2/200-PW-4 OU - Borehole Soil

QC-LCS 45090		
--------------	--	--

LAB CONTROL SAMPLES
Page 3
SUMMARY DATA SECTION
Page 17

SAMPLE DELIVERY GROUP H2250

7529-007

DUPLICATE

B17122

SDG 7529		Client/Case no <u>Hanford SDG H2250</u>
Contact Melissa C. Mannion		Contract No. 630
DUPLICATE	ORIGINAL	
Lab sample id <u>R306005-07</u>	Lab sample id <u>R306005-01</u>	Client sample id <u>B17122</u>
Dept sample id <u>7529-007</u>	Dept sample id <u>7529-001</u>	Location/Matrix 216-A-10 (C3247) SOLID
	Received <u>06/06/03</u>	Collected/Weight <u>05/27/03 11:10</u> <u>167.6 g</u>
% solids <u>89.0</u>	% solids <u>89.0</u>	Custody/SAF No <u>F03-006-107</u> <u>F03-006</u>

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD %	3ø PROT TOT LIMIT
Tritium	221	2.2	0.42	400		Н	211	2.1	0.40		5	21
Carbon 14	8.74	1.8	2.7	50		С	7.50	1.7	2.5		15	50
Nickel 63	0.597	2.9	4.9	30	U	NI_L	-1.00	3.1	5.2	U	-	
Total Strontium	2.90	0.88	1.2	1.0		SR	2.91	0.92	1.3		0	69
Technetium 99	0.166	0.22	0.55	15	U	TC	0.298	0.17	0.53	บ	-	
Thorium 228	0.779	0.39	0.50			TH	2.11	0.91	0.85		92	104
Thorium 230	0.389	0.39	0.50	1.0	U	TH	1.10	0.67	0.84		96	157
Thorium 232	0.713	0.39	0.50	1.0		TH	0.881	0.67	0.84		21	146
Total Uranium (ug/g)	0.542	0.062	0.004	1.0		U_T	0.568	0.065	0.004		5	31
Uranium 233/234	0.564	0.34	0.43	1.0		U	0.372	0.32	0.41	U	41	150
Uranium 235	0.068	0.14	0.52	1.0	U	U	0	0.13	0.49	U	-	
Uranium 238	0.620	0.34	0.43	1.0		U	0.479	0.32	0.41		26	128
Neptunium 237	0	0.081	0.31	1.0	U	NP	0	0.58	0.87	U	-	
Americium 241	53.2	6.8	1.1	1.0		AM	57.3	6.3	0.86		7	27
Iodine 129	37.3	0.82	1.1	2.0		ı	38.8	0.83	1.0		4	22
Potassium 40	17.4	9.0	1.4			GAM	19.2	2.5	1.2		10	83
Cobalt 60	U		0.14	0.050	U	GAM	U		0.16	U	-	
Tin 126	U		0.69		U	GAM	U		1.5	IJ	-	
Cesium 134	U		0.24		U	GAM	U		0.27	U	-	
Cesium 137	2840	4.0	0.72	0.10		GAM	2950	6.0	1.9		4	32
Radium 226	U		1.1		U	GAM	U		2.5	U	-	
Radium 228	1.75	1.1	0.88			GAM	1.27	0.89	0.99		32	144
Europium 152	U		2.8	0.10	U	GAM	Ü		4,6	U	-	
Europium 154	Ü		0,42	0.10	U	GAM	U		0.56	U	-	
Europium 155	U		1.4	0.10	U	GAM	U		2,7	U	-	
Thorium 228	U		1.2		U	GAM	U		1.9	U	_	
Thorium 232	1.75	1.1	0.88			GAM	1.27	0.89	0.99		32	144
Uranium 235	U		2.3		U	GAM	U		4.6	U	-	

200-PW-2/200-PW-4 OU - Borehole Soil

DUPLICATES
Page 1
SUMMARY DATA SECTION
Page 18

Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-DUP</u>

Version <u>3.06</u>

Report date <u>07/21/03</u>

SAMPLE DELIVERY GROUP H2250

7529-007

DUPLICATE, cont.

B17122

SDG <u>7529</u> Contact <u>Melissa C. Mannion</u>		Client/Case no <u>Hanford</u> <u>SDG H2250</u> Contract <u>No. 630</u>
DUPL I CATE	ORIGINAL	
Lab sample id <u>R306005-07</u>	Lab sample id <u>R306005-01</u>	Client sample id <u>B17122</u>
Dept sample id <u>7529-007</u>	Dept sample id <u>7529-001</u>	Location/Matrix 216-A-10 (C3247) SOLID
	Received <u>06/06/03</u>	Collected/Weight <u>05/27/03 11:10 167.6 g</u>
% solids <u>89.0</u>	% solids <u>89.0</u>	Custody/SAF No <u>F03-006-107</u> <u>F03-006</u>

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCî/g	QUALI- FIERS	RPD %	'3σ PROT TOT LIMIT
Uranium 238 Americium 241	U 58.6	0.57	19 0.70		U	GAM GAM	U 63.9	3.0	24 3.8	U	9	33

200-PW-2/200-PW-4 OU - Borehole Soil

DUPLICATES
Page 2
SUMMARY DATA SECTION
Page 19

SAMPLE DELIVERY GROUP H2250

7529-011

DUPLICATE

B17122

SDG 75	529		Client/Case no	Hanford SDG	н2250
Contact Mc	elissa C. Mannion		Contract	No. 630	
DI	UPLICATE	ORIGINAL			
Lab sample id R	306005-11 Lab	sample id <u>R306005-01</u>	Client sample id	B17122	
Dept sample id 7	<u>529-011</u> Dept	sample id <u>7529-001</u>	Location/Matrix	216-A-10 (C3247)	SOLID
		Received <u>06/06/03</u>	Collected/Weight	05/27/03 11:10 167.6 g	
% solids _1	89.0	% solids <u>89.0</u>	Custody/SAF No	F03-006-107 F03-006	

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD %	3σ PROT TOT LIMIT
Plutonium 238 Plutonium 239/240	0.216 5.38	0.16 0.68	0.22 0.22	1.0 1.0	U	PU PU	0.073 1.40	0.073 0.33	0.14 0.14	U	- <u>117</u>	36

200-PW-2/200-PW-4 OU - Borehole Soil

DUPLICATES
Page 3
SUMMARY DATA SECTION
Page 20

Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-DUP</u>

Version <u>3.06</u>

Report date <u>07/21/03</u>

SAMPLE DELIVERY GROUP H2250

7529-008

MATRIX SPIKE

B17122

SDG <u>7529</u>		Client/Case no <u>Hanford SDG H2250</u>
Contact <u>Melissa C. Mannion</u>		Contract <u>No. 630</u>
MATRIX SPIKE	ORIGINAL	
Lab sample id <u>R306005-08</u>	Lab sample id <u>R306005-01</u>	Client sample id <u>B17122</u>
Dept sample id <u>7529-008</u>	Dept sample id <u>7529-001</u>	Location/Matrix 216-A-10 (C3247) SOLID
	Received <u>06/06/03</u>	Collected/Weight 05/27/03 11:10 167.6 g
% solids <u>89.0</u>	% solids <u>89.0</u>	Custody/SAF No <u>F03-006-107</u> <u>F03-006</u>

ANALYTE	SPIKE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS		ADDED pCi/g	2σ ERR pCi/g	ORIGINAL pCi/g	2σ ERR (COUNT)		3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	254	2.6	0.45	400	Х	н	56.0	2.2	211	2.1	77	11-189	60-140

200-PW-2/200-PW-4 OU - Borehole Soil

QC-MS#1 44	4974			

MATRIX SPIKES
Page 1
SUMMARY DATA SECTION
Page 21

Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-MS</u>

Version <u>3.06</u>

Report date <u>07/21/03</u>

7529-001

DATA SHEET

B17122

	7529 Melissa C. Mannion	Client/Case no Contract		SDG_H2250
Lab sample id Dept sample id Received % solids	7529-001 06/06/03		216-A-10 (C3247) 05/27/03 11:10 16	SOLID 7.6 g 3-006

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	211	2.1	0.40	400		Н
Carbon 14	14762-75-5	7.50	1.7	2.5	50		C
Nickel 63	13981-37-8	-1.00	3.1	5.2	30	U	$\mathtt{NI}_{\mathtt{L}}$
Total Strontium	SR-RAD	2.91	0.92	1.3	1.0		SR
Technetium 99	14133-76-7	0.298	0.17	0.53	15	U	TC
Thorium 228	14274-82-9	2.11	0.91	0.85			TH
Thorium 230	14269-63-7	1.10	0.67	0.84	1.0		\mathbf{TH}
Thorium 232	TH-232	0.881	0.67	0.84	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.568	0.065	0.004	1.0		UT
Uranium 233/234	U-233/234	0.372	0.32	0.41	1.0	U	บ
Uranium 235	15117-96-1	0	0.13	0.49	1.0	U	U
Uranium 238	U-238	0.479	0.32	0.41	1.0		U
Neptunium 237	13994-20-2	0	0.58	0.87	1.0	U	NP
Plutonium 238	13981-16-3	0.073	0.073	0.14	1.0	ប	₽U
Plutonium 239/240	PU-239/240	1.40	0.33	0.14	1.0		PU
Americium 241	14596-10-2	57.3	6.3	0.86	1.0		AM
Iodine 129	15046-84-1	38.8	0.83	1.0	2.0		I
Potassium 40	13966-00-2	19.2	2.5	1.2			GAM
Cobalt 60	10198-40-0	U		0.16	0.050	ប	GAM
Tin 126	15832-50-5	Ū		1.5		ប	GAM
Cesium 134	13967-70-9	υ		0.27		U	GAM
Cesium 137	10045-97-3	2950	6.0	1.9	0.10		GAM
Radium 226	13982-63-3	U		2.5		U	GAM
Radium 228	15262-20-1	1.27	0.89	0.99			GAM
Europium 152	14683-23-9	U		4.6	0.10	U	GAM
Europium 154	15585-10-1	U		0.56	0.10	ប	GAM
Europium 155	14391-16-3	U		2.7	0.10	υ	GAM
Thorium 228	14274-82-9	U		1.9		U	GAM

200-PW-2/200-PW-4 OU - Borehole Soil

DATA SHEETS
Page 1
SUMMARY DATA SECTION
Page 22

7529-001

DATA SHEET, cont

B17122

	7529 Melissa C. Mannion	Client/Case no Contract		SDG_H2250
Lab sample id Dept sample id Received % solids	7529-001 06/06/03	· · · · · · · · · · · · · · · · · · ·	216-A-10 (C3247) 05/27/03 11:10 167.	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Thorium 232	TH-232	1.27	0.89	0.99			GAM
Uranium 235	15117-96-1	U		4.6		U	GAM
Uranium 238	U-238	U		24		ប	GAM
Americium 241	14596-10-2	63.9	3.0	3.8			GAM

200-PW-2/200-PW-4 OU - Borehole Soil

DATA SHEETS
Page 2
SUMMARY DATA SECTION
Page 23

7529-002

DATA SHEET

B171B8

i	7529 Melissa C. Mannion	Client/Case no Contract		SDG_H2250
Lab sample id Dept sample id Received % solids	7529-002 06/06/03	Client sample id Location/Matrix Collected/Weight Custody/SAF No	216-B-12 (C3246) 05/29/03 12:50	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	8.28	0.33	0.27	400		н.
Carbon 14	14762-75-5	-0.020	1.6	2.7	50	υ	С
Nickel 63	13981-37-8	0.061	1.3	2.2	30	U	NI_L
Total Strontium	SR-RAD	0.125	0.15	0.28	1.0	υ	SR
Technetium 99	14133-76-7	0.123	0.29	0.57	15	υ	TC
Thorium 228	14274-82-9	0.584	0.27	0.20			TH
Thorium 230	14269-63-7	1.19	0.38	0.20	1.0		\mathtt{TH}
Thorium 232	TH-232	0.716	0.27	0.20	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.445	0.053	0.004	1.0		U_T
Uranium 233/234	U-233/234	0.605	0.23	0.17	1.0		υ ¯
Uranium 235	15117-96-1	0.027	0.054	0.21	1.0	U	U
Uranium 238	U-238	0.628	0.23	0.17	1.0		U
Neptunium 237	13994-20-2	0.043	0.086	0.13	1.0	U	NP
Plutonium 238	13981-16-3	0	0.076	0.29	1.0	U	ΡŲ
Plutonium 239/240	PU-239/240	0	0.076	0.29	1.0	ប	PU
Americium 241	14596-10-2	0.047	0.095	0.18	1.0	ซ	AM
Iodine 129	15046-84-1	-0.051	0.46	1.0	2.0	ប	I
Potassium 40	13966-00-2	14.2	8.0	1.4			GAM
Cobalt 60	10198-40-0	U		0.14	0.050	บ	GAM
Tin 126	15832-50-5	0.742	0.15	0.17			GAM
Cesium 134	13967-70-9	U		0.23		Ū	GAM
Cesium 137	10045-97-3	U		0.14	0.10	ប	GAM
Radium 226	13982-63-3	0.708	0.27	0.24			GAM
Radium 228	15262-20-1	U		1.1		U	GAM
Europium 152	14683-23-9	U		0.34	0.10	υ	GAM
Europium 154	15585-10-1	U		0.42	0.10	U	GAM
Europium 155	14391-16-3	ប		0.26	0.10	ប	GAM
Thorium 228	14274-82-9	0.930	0.21	0.16			GAM

200-PW-2/200-PW-4 OU - Borehole Soil

DATA SHEETS
Page 3
SUMMARY DATA SECTION
Page 24

7529-002

DATA SHEET, cont

B171B8

i	7529 Melissa C. Mannion	Client/Case no Contract		SDG H2250
		Collected/Weight	B171B8 216-B-12 (C3246) 05/29/03 12:50 184. F03-006-134 F03-	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Thorium 232	TH-232	U		1.1		Ū	GAM
Uranium 235	15117-96-1	Ŭ		0.42		U	GAM
Uranium 238	U-238	U		17		U	GAM
Americium 241	14596-10-2	Ū		0.12		Ū	GAM

200-PW-2/200-PW-4 OU - Borehole Soil

DATA SHEETS
Page 4
SUMMARY DATA SECTION
Page 25

7529-003

DATA SHEET

B171C1-B

1	7529 Melissa C. Mannion	Client/Case no Contract		SDG H2250
i		Collected/Weight	B171C1-B 216-B-12 (C3246) 06/03/03 10:15 152. F03-006-179 F03-	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	4.95	0.28	0.27	400		Н
Carbon 14	14762-75-5	1.46	1.6	2.6	50	U	C.
Nickel 63	13981-37-8	-0.077	1.2	2.1	30	U	$\mathtt{NI}_{\mathtt{L}}$
Total Strontium	SR-RAD	31.8	1.2	0.32	1.0		SR
Technetium 99	14133-76-7	0.123	0.15	0.55	15	U	TC
Thorium 228	14274-82-9	0.517	0.26	0.20			TH
Thorium 230	14269-63-7	0.929	0.32	0.25	1.0		TH
Thorium 232	TH-232	0.671	0.26	0.20	1.0		TH
Neptunium 237	13994-20-2	0.216	0.29	0.22	1.0	U	NP
Iodine 129	15046-84-1	-0.361	0.53	1.2	2.0	U	I

200-PW-2/200-PW-4 OU - Borehole Soil

DATA SHEETS
Page 5
SUMMARY DATA SECTION
Page 26

7529-004

DATA SHEET

B17218-B

	7529 Melissa C. Mannion	Client/Case no Contract		SDG_H2250
		Collected/Weight	B17218-B 216-B-12 (C3246) 06/03/03 10:15 148. F03-006-179 F03-	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	5.31	0.28	0.26	400		н
Carbon 14	14762-75-5	2.35	1.6	2.6	50	U	C
Nickel 63	13981-37-8	0.078	1.3	2.1	30	U	NI_L
Total Strontium	SR-RAD	31.2	1.2	0.31	1.0		sr
Technetium 99	14133-76-7	0.094	0.23	0.40	15	υ	TC
Thorium 228	14274-82-9	0.490	0.22	0.21			TH
Thorium 230	14269-63-7	0.789	0.33	0.21	1.0		TH
Thorium 232	TH-232	0.544	0.22	0.21	1.0		TH
Neptunium 237	13994-20-2	0.056	0.11	0.17	1.0	ប	NP
Todine 129	15046-84-1	0.362	0.43	0.96	2.0	υ	I

200-PW-2/200-PW-4 OU - Borehole Soil

DATA SHEETS
Page 6
SUMMARY DATA SECTION
Page 27

SAMPLE DELIVERY GROUP H2250

Test AM Matrix SOLID

SDG 7529

Contact Melissa C. Mannion

LAB METHOD SUMMARY AMERICIUM 241 IN SOIL ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2250

RESULTS

LAB	RAW SUF-		Americium	
SAMPLE ID	TEST FIX PLANCHET	CLIENT SAMPLE ID	241	
Preparation	n batch 7071-037	.		
R305191-05	7528-005	LCS (QC ID=44883)	ok	
R305191-06	7528-006	BLK (QC 1D=44884)	U	
R306005-01	7529-001	B17122	57.3	
R306005-02	7529-002	B171B8	U	
R306005-07	7529-007	Duplicate (R306005-01)	ok	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST		CLIENT	SAMPL	E ID	MDA pCi/		PREP FAC	DILU-	YIELD %	EFF %		FWHM keV	 	PREPARED	ANAL - YZED	DETECTOR
Preparation	batch	707	1-037	2σ	prep error	5.0 %	Reference	Lab	Notebook	7071	pg.	037			•		
R305191-05			LCS (QC	: ID=4	4883)	0.2	3 0.500			65		135			07/02/03	07/02	SS-064
R305191-06			BLK (QC	: ID=4	4884)	0.2	0.500			75		135			07/02/03	07/02	SS-065
R306005-01			B17122			0.8	6 <u>0.100</u>			66		178		36	07/02/03	07/02	SS-051
R306005-02			B171B8			0.1	0.500			65		179		34	07/02/03	07/02	SS-057
R306005-07			•	-	306005-01) 4973)	1.1	0.100			81		110		37	07/02/03	07/03	ss-042
Nominal valu	ues an	d lîn	nits fro	m met	hod	1.0	0.500		••	20-10	— 5	100	100	 180			

	PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
ı		CP-060	Soil Preparation, rev 4
		CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
		CP-963	Americium and Curium in Water and Dissolved
			Samples by Extraction Chromatography, rev 3
		CP-008	Heavy Element Electroplating, rev 7
- 1	!		

AVERAGES ± 2 SD	MDA	0.51	±	0.87
FOR 5 SAMPLES	YIELD	70	ŧ	15

METHOD SUMMARIES
Page 1
SUMMARY DATA SECTION
Page 28

Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LMS</u>

Version <u>3.06</u>

Report date <u>07/21/03</u>

SAMPLE DELIVERY GROUP H2250

Test NP Matrix SOLID
SDG 7529
Contact Melissa C. Mannion

LAB METHOD SUMMARY

NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Contract <u>SDG H2250</u>

RESULTS

LAB SAMPLE ID	RAW SUF- TEST FIX PLANCHET	CLIENT SAMPLE ID	Neptunium 237	
Preparation	n batch 7071-044			
R306005-01	7529-001	817122	U	•
R306005-02	7529-002	817188	U	
R306005-03	7529-003	B171C1-B	U	
R306005-04	7529-004	в17218-в	U	
R306005-05	7529-005	LCS (QC ID=44971)	ok	
R306005-06	7529-006	BLK (QC ID=44972)	υ	
R306005-07	7529-007	Duplicate (R306005-01)	- U	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW SUF- TEST FIX	CLIENT	SAMPLE I	D	MDA pCi/g	ALIQ g	PREP FAC	DILU- Tion	YIELD		COUNT	FWHM keV			PREPARED	ANAL - YZED	DETECTO
Preparation	batch 7071	1-044	2σ pre	p error	5.0 % 6	Reference	Lab	Noteboo	k 7071	pg.	044						
R306005-01		в17122			0.87	0.100			42		103			44	07/09/03	07/10	ss-028
R306005-02		B171B8			0.13	0.500			58		103			42	07/09/03	07/10	SS-029
R306005-03		B171C1-	В		0.22	0.500			37		103			37	07/09/03	07/10	SS-035
R306005-04		B17218-	·8		0.17	0.500			46		103			37	07/09/03	07/10	ss-036
R306005-05		LCS (QC	ID=4497	71)	0.18	0.500			42		103				07/09/03	07/10.	ss-042
R306005-06		BLK (Q	ID=4497	' 2)	0.08	0.500			42		609				07/09/03	07/10	\$\$-035
R306005-07			ate (R306 : ID=4497		0.31	0.100			54		609			44	07/09/03	07/10	SS-036
Nominal val	ues and lir	nits fro	om method	i	1.0	0.500			20-10	5	100		<u> </u>	180			

METHOD SUMMARIES
Page 2
SUMMARY DATA SECTION
Page 29

Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LMS</u>

Version <u>3.06</u>

Report date <u>07/21/03</u>

SAMPLE DELIVERY GROUP H2250

Test	<u>NP</u>	Mat	tri>	SOLID
SDG	<u>7529</u>			
Contact	Melis	ss <u>a</u>	c.	Manni on

LAB METHOD SUMMARY, cont. NEPTUNIUM IN SOIL ALPHA SPECTROSCOPY

Client	Hanford .
Contract	No. 630
Contract	SDG H2250

PROCEDURES	REFERENCE	NP237_LLE_PLATE_AEA
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-930	Neptunium from Solids and Water by Extraction
		Chromatography, rev 0
	CP-008	Heavy Element Electroplating, rev 7

MDA <u>0.28</u> ± <u>0.54</u> AVERAGES ± 2 SD FOR 7 SAMPLES YIELD 46 ± 15

METHOD SUMMARIES Page 3 SUMMARY DATA SECTION Page 30

Lab id EBRLNE Protocol <u>Hanford</u> Version Ver 1.0 Form DVD-LMS Version 3.06_ Report date <u>07/21/03</u>

SAMPLE DELIVERY GROUP H2250

Test PU Matrix SOLID
SDG 7529
Contact Melissa C. Mannion

LAB METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2250

RESULTS

LAB SAMPLE ID	RAW SUF		CLIENT SAMPLE ID	Plutonium 238	Plutonium 239/240	
Preparation	batch 70	71-044				
R306005-01	A1	7529-001	B17122	U	1.40	
R306005-02	A1	7529-002	B171B8	U	U	•
R306005-09		7529-009	LCS (QC ID=45090)	ok	ok	
R306005-10		7529-010	BLK (QC ID=45091)	U	U	
R306005-11		7529-011	Duplicate (R306005-01)	- U	OUT	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST		CLIENT	SAMPLE ID	MAX MC pCi/g		PREP FAC	DILU- Tion	YIELD %				 	PREPARED	ANAL - YZED	DETECTOR
Preparation	batc	h 707	1-044	2σ prep error	5.0 %	Reference	Lab	Notebool	7071	pg.	044					-
R306005-01		A1	B17122		0.14	0.100			85		879		53	07/16/03	07/19	SS-055
R306005-02		A1	B171B8		0.29	0.500			67		101		50	07/16/03	07/18	SS-029
R306005-09			LCS (QC	C ID=45090)	0.33	0.500			75		101			07/16/03	07/18	SS-038
R306005-10			BLK (Q	ID=45091)	0.32	0.500			62		102			07/16/03	07/18	SS-042
R306005-11			•	ate (R306005-01) C ID=45092)	0.22	0.100			76		880		53	07/16/03	07/19	ss-056
Nominal valu	ues ar	nd lii	nits fro	om method	1.0	0.500			20-10	5	100	100	180			

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-941	Plutonium in Water and Dissolved Samples by
		Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD MDA 0.26 ± 0.16 FOR 5 SAMPLES YIELD 73 ± 18

METHOD SUMMARIES
Page 4
SUMMARY DATA SECTION
Page 31

Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LMS</u>

Version <u>3.06</u>

Report date <u>07/21/03</u>

SAMPLE DELIVERY GROUP H2250

Test TH Matrix SOLID
SDG 7529
Contact Melissa C. Mannion

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2250

RESULTS

Preparation	batch 707	71-044		
R306005-01	R1	7529-001	B17122	1.10
R306005-02		7529-002	B171B8	1.19
R306005-03		7529-003	в171с1-в	0.929
R306005-04		7529-004	В17218-В	0.789
R306005-05		7529-005	LCS (QC ID=44971)	ok
R306005-06		7529-006	BLK (QC ID=44972)	U
R306005-07		7529-007	Duplicate (R306005-01)	ok U

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST		CLIENT	SAMPLE	ID	MAX MC pCi/s	•••	PREP FAC		YIELD %	EFF %	COUNT min	 		PREPARED	ANAL- YZED	DETECTOR
Preparation	batcl	707	1-044	2σ p	rep erro	r 5.0 %	Reference	Lab	Noteboo	k 7071	pg.	044	<u> </u>				
R306005-01		R1	B17122			0.84	0.100			73		157		52	07/11/03	07/18	ss-028
R306005-02			B171B8			0.20	0.250			89		217		43	07/11/03	07/11	ss-029
R306005-03			B171C1	-В		0.25	0.250			98		216		38	07/11/03	07/11	ss-035
R306005-04			B17218	- B		0.21	0.250			90		217		38	07/11/03	07/11	ss-036
R306005-05			LCS (Q	C ID=44	971)	0.26	0.250			92		217			07/11/03	07/11	ss-042
R306005-06			BLK (Q	C ID=44	972)	0.20	0.250			96		218			07/11/03	07/11	ss-056
R306005-07			•	ate (R3 C ID=44	06005-01 973)) 0.50	0.100			104		218		45	07/11/03	07/11	\$\$-057
Nominal valu	ies ar	nd lii	mits fr	om meth	od	1.0	0.250			20-10	5	150		180			-

METHOD SUMMARIES
Page 5
SUMMARY DATA SECTION
Page 32

Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LMS</u>

Version <u>3.06</u>

Report date <u>07/21/03</u>

SAMPLE DELIVERY GROUP H2250

Test IH Matrix SOLID
SDG 7529
Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	SDG_H2250

PROCEDURES	CP-060	THISO_IE_PLATE_AEA Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-900	Thorium in Water and Dissolved Solid Samples by
		Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD MDA 0.35 ± 0.48 FOR 7 SAMPLES YIELD 92 ± 19

METHOD SUMMARIES
Page 6
SUMMARY DATA SECTION
Page 33

SAMPLE DELIVERY GROUP H2250

Test U Matrix SOLID
SDG 7529
Contact Melissa C. Mannion

LAB METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2250

RESULTS

LAB	RAW SUF-		1: Uranium	2: Uranium	3: Uranium			ATIOS	
SAMPLE ID	TEST FIX PLANCHET	CLIENT SAMPLE ID	233/234	235	238	1÷3	2σ	2÷3	2σ
Preparation	batch 7071-037								
R305191-05	7528-005	LCS (QC ID=44883)	ok	ok	ok				
R305191-06	7528-006	BLK (QC ID=44884)	U	U	U				
R306005-01	7529-001	B17122	U	U	0.479	78	85	0	27
R306005-02	7529-002	B171B8	0.605	U	0.628	96	51	4	9
R306005-07	7529-007	Duplicate (R306005-01)	ok	- U	ok	91	74	11	23
Nominal valu	es and limits from m	method RDLs (pCi/g)	1.0	1.0	1.0	100		4	
200-PW-2/200	-PW-4 OU - Borehole	Soil				Averages 88		5	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST		CLIENT	SAMPLE II)	MAX MI pCi/		PREF FAC		YIELD %	EFF %		FWHM keV	 	PREPARED	ANAL- YZED	DETECTOR
Preparation	batch	7071	-037	2σ pre	error	5.0 %	Reference	e Lab	Notebook	7071	pg.	037					
R305191-05			LCS (Q	C ID=4488	3)	0.9	0.500			86		128			07/08/03	07/08	ss-059
R305191-06			BLK (Q	C ID=44884	4)	0.2	0.500			98		128			07/08/03	07/08	SS-060
R306005-01			в17122			0.49	0.200			101		129		42	07/08/03	07/08	ss-062
R306005-02			B171B8			0.2	0.500			98		129		40	07/08/03	07/08	SS-065
R306005-07			•	ate (R3060 C ID=4497		0.5	0.200			97		129		42	07/08/03	07/08	SS-066
Nominal valu	ies an	d lim	nits fro	om method		1.0	0.500			20-10	5	100	100	180	, .		

	PROCEDURES	REFERENCE	UISO_PLATE_AEA
		CP-060	Soil Preparation, rev 4
-		CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
		CP-921	Uranium in Water and Dissolved Samples by
			Extraction Chromatography, rev 0
		CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD	MDA	0.47	ŧ	0.61
FOR 5 SAMPLES	YIELD	<u>96</u>	±	12

METHOD SUMMARIES
Page 7
SUMMARY DATA SECTION
Page 34

SAMPLE DELIVERY GROUP H2250

Test <u>SR</u> Matrix <u>SOLID</u>
SDG <u>7529</u>
Contact <u>Melissa C. Mannion</u>

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client <u>Hanford</u>
Contract <u>No. 630</u>
Contract <u>SDG H2250</u>

RESULTS

IAB SAMPLE ID	RAW SUF-		CLIENT SAMPLE ID	Total Strontium	
Preparation	batch 707	71-044			
R306005-01		7529-001	B17122	2.91	
R306005-02		7529-002	B171B8	U	
R306005-03		7529-003	B171C1-B	31.8	
R306005-04		7529-004	В17218-В	31.2	•
R306005-05		7529-005	LCS (QC ID=44971)	ok	
R306005-06		7529-006	BLK (QC ID=44972)	U	
R306005-07		7529-007	Duplicate (R306005-01)	ok	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST		CLIENT	SAMPLE	ID	MDA pCi/s	ALIQ g	PREP FAC	DILU-	YIELD %		COUNT	_		PREPARED	ANAL- YZED	DETECTOR
Preparation	batcl	707	1-044	2σ p	гер еггог	10.0 %	Reference	Lab	Notebool	k 7071	pg.	044					
R306005-01			B17122			1.3	0,200			87		100		36	07/02/03	07/02	GRB-222
R306005-02			B171B8			0.28	1.00			91		100		34	07/02/03	07/02	GRB-221
R306005-03			B171C1	-В		0.32	1.00			96		<u>78</u>		29	07/02/03	07/02	GRB-223
R306005-04			B17218	-В		0.31	1.00			93		78		29	07/02/03	07/02	GRB-224
R306005-05			LCS (Q	C ID=44	971)	0.33	1.00			79		100			07/02/03	07/02	GRB-223
R306005-06			BLK (Q	C ID=44	972)	0.27	1.00			80		100			07/02/03	07/02	GRB-224
R306005-07				ate (R3 C ID=44	06005-01) 973)	1.2	0.200			84		100		36	07/02/03	07/02	GRB-202
Nominal valu	Jes ai	nd li	nits fr	om meth	od	1.0	1.00			30-10	5	100		 180			

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-381	Strontium in Solids, rev 1

AVERAGES ± 2 SD MDA 0.57 ± 0.93 FOR 7 SAMPLES YIELD 87 ± 13

METHOD SUMMARIES
Page 8
SUMMARY DATA SECTION
Page 35

Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LMS</u>

Version <u>3.06</u>

Report date <u>07/21/03</u>

SAMPLE DELIVERY GROUP H2250

Test IC Matrix SOLID
SDG 7529
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TECHNETIUM 99 IN SOIL
BETA COUNTING

Client Hanford

Contract No. 630

Contract SDG H2250

RESULTS

LAB SAMPLE ID	RAW SUF- TEST FIX PLANCHET	CLIENT SAMPLE ID	Technetium 99	
Preparation	batch 7071-044			
R306005-01	7529-001	B17122	U	
R306005-02	7529-002	B171B8	U	
R306005-03	7529-003	B171c1-8	U	
R306005-04	7529-004	B17218-B	U	
R306005-05	7529-005	LCS (QC ID=44971)	ok	
R306005-06	7529-006	BLK (QC ID=44972)	υ	
R306005-07	7529-007	Duplicate (R306005-01)	- U	

METHOD PERFORMANCE

	RAW S		ENT	SAMPLE	ID	MDA pCi/s	ALIQ 9 9	PREP FAC		YIELD %	EFF %	COUNT min	 		PREPARED	ANAL-	DETECTOR
Preparation	batch	7071-04	.4	2σ p	rep erro	r 10.0 %	Reference	Lab	Notebool	c 7071	pg.	044	·	***			
R306005-01		B17	122			0.5	3 1.03			90		50		40	07/01/03	07/06	GRB-220
R306005-02		В17	1B8			0.5	7 1.03			88		50		36	07/01/03	07/04	GRB-230
R306005-03		В17	101-	В		0.5	1.02			91		50		32	07/01/03	07/05	GRB-221
R306005-04		В17	218-	В		0.40	1.02			87		100		31	07/01/03	07/04	GRB-219
R306005-05		LCS	(QC	ID=44	971)	0.3	1.00			94		100			07/01/03	07/04	GRB-220
R306005-06		BLK	(QC	ID=44	972)	0.5	2 . 1.00			96		50			07/01/03	07/04	GRB-221
R306005-07		Dut		te (R3 ID=44	06005-01; 973)) 0.5	5 1.03			88		50		39	07/01/03	07/05	GRB-224
Nominal valu	es and	llimits	fro	m meth	od	15	1.00			20-10	5	50	 -	180			

METHOD SUMMARIES
Page 9
SUMMARY DATA SECTION
Page 36

SAMPLE DELIVERY GROUP H2250

Test	TC	Mat	trix	SOLID	_
SDG	<u>7529</u>				
Contact	Mel <u>i</u> :	ssa	c.	Mannion	

LAB METHOD SUMMARY, cont. TECHNETIUM 99 IN SOIL BETA COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG H2250

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
1	CP-021	Preparation of Tc-99m Tracer, rev 2
	CP-002	Q.C. Preparation, rev 4
	CP-003	Addition of Carriers and Tracers, rev 5
	CP-542	Technetium-99 Purification (Soil) by Extraction
		Chromatography, rev 2
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD MDA 0.50 ± 0.17
FOR 7 SAMPLES YIELD 91 ± 7

METHOD SUMMARIES
Page 10
SUMMARY DATA SECTION
Page 37

SAMPLE DELIVERY GROUP H2250

Test <u>GAM</u> Matrix <u>SOLID</u> SDG <u>7529</u> Contact <u>Melissa C. Mannion</u>

LAB METHOD SUMMARY

GAMMA SCAN
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2250

RESULTS

Preparation bate	h 7071-044			
R306005-01	7529-001	в17122	IJ	2950
R306005-02	7529-002	B171B8	U	U
R306005-05	7529-005	LCS (QC ID=44971)	ok	ok
R306005-06	7529-006	BLK (QC ID=44972)	U	U
R306005-07	7529-007	Duplicate (R306005-01)	- U	ok

METHOD PERFORMANCE

LAB SAMPLE ID	RAW SUF- TEST FIX CLIENT SAMPLE ID	MDA pCi/g	AL IQ g	PREP FAC	DILU- TION	YIELD %	EFF %				PREPARED	ANAL- YZED	DETECTOR
	batch 7071-044 2σ prep error	15.0 % Re	ference			7071	pg.	044	 				
R306005-01 R306005-02	B17122 B171B8	1.1						437 440			06/17/03 06/17/03	-	
R306005-05 R306005-06	LCS (QC ID=44971) BLK (QC ID=44972)	0.20						658 658			06/17/03 06/17/03		PD,03,00 PD,04,00
R306005-07	Duplicate (R306005-01) (QC ID=44973)	5.4	39.0					651		26	06/17/03	06/22	PD,07,00
Nominal value	ues and limits from method	0.050	39.0					100		180			

PROCEDURES	REFERENCE	GAMMA_GS
	CP-060	Soil Preparation, rev 4
	CP-100	Ge(Li) Preparation for Commercial Samples, rev 5

AVERAGES ± 2 SD MDA ______ ± _____
FOR 5 SAMPLES YIELD _____ ± _____

METHOD SUMMARIES
Page 11
SUMMARY DATA SECTION
Page 38

Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LMS</u>

Version <u>3.06</u>

Report date <u>07/21/03</u>

SAMPLE DELIVERY GROUP H2250

Test	<u>I</u>	Mat	гiх	SOL ID
SDG	<u>7529</u>	·		
Contact	Melis	ssa (C. N	lanni on

LAB METHOD SUMMARY

IODINE 129 IN SOIL GAMMA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	SDG_H2250

RESULTS

TAB RAW SUF-

CLIENT SAMPLE ID Iodine 129 SAMPLE ID TEST FIX PLANCHET Preparation batch 7071-044 R306005-01 7529-001 B17122 38.8 R306005-02 7529-002 B171B8 U R306005-03 7529-003 в171с1-в U U 7529-004 В17218-В R306005-04 R306005-05 7529-005 LCS (QC ID=44971) ok 7529-006 BLK (QC ID=44972) R306005-06 U R306005-07 7529-007 Duplicate (R306005-01) ok Nominal values and limits from method RDLs (pCi/g) 2.0 200-PW-2/200-PW-4 OU - Borehole Soil

METHOD PERFORMANCE

LAB SAMPLE ID	RAW :		CLIENT	SAMP	LE II)	MD# pCi/	-	ALIQ g	PREP FAC		YIELD %	EFF %	COUNT			PREPARED	ANAL~ YZED	DETECTOR
Preparation	batch	7071	-044	2σ	pre	error	10.0 %	Re	eference	Lab i	Noteboo	k 7071	pg.	044					
R306005-01			B17122				1.0)	1.00			63		926		42	07/08/03	07/08	XSPEC-004
R306005-02			B171B8				1.0)	1.00			72		656		41	07/08/03	07/09	XSPEC-004
R306005-03			B171C1	-B			1.2	2	1.00			59		919		36	07/08/03	07/09	XSPEC-004
R306005-04			B17218	-В			0.9	26	1.04			60		638		37	07/08/03	07/10	XSPEC-004
R306005-05			LCS (Q	C ID=	4497)	1.4	•	1.00			92		711			07/08/03	07/10	XSPEC-004
R306005-06			BLK (Q	C ID=	44972	2)	0.7	75	1.00			91		622			07/08/03	07/11	XSPEC-004
R306005-07			•	ate (I C ID≕)05-01) ()	1.1	l	1.00			53		1190		45	07/08/03	07/11	XSPEC-004
Nominal valu	es and	d lin	its fr	om me	thod		2.0)	1.00	_		20-105	5	300		180			

AVERAGES ± 2 SD MDA 1.1 ± 0.41
FOR 7 SAMPLES YIELD 70 ± 31

METHOD SUMMARIES
Page 12
SUMMARY DATA SECTION
Page 39

SAMPLE DELIVERY GROUP H2250

Test <u>U T</u> Matrix <u>SOLID</u> SDG <u>7529</u> Contact <u>Melissa C. Mannion</u>

LAB METHOD SUMMARY

URANIUM, TOTAL IN SOIL KINETIC PHOSPHORIMETRY (KPA)

Client	Hanford
Contract	No. 630
Contract	SDG H2250

RESULTS

LAB	RAW SUF-		Total	
SAMPLE ID	TEST FIX PLANCHET	CLIENT SAMPLE ID	Uranium	
Preparation	n batch 7071-044			
R306005-01	7529-001	B17122	0.568	
R306005-02	7529-002	B171B8	0.445	
R306005-05	7529-005	LCS (QC ID=44971)	ok	
R306005-06	7529-006	BLK (QC ID=44972)	U	
R306005-07	752 9 -007	Duplicate (R306005-01)	ok	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST		CLIENT	SAM	PLE	ID		MDA ug/g	AL:		PREP FAC	DILU- TION	YIELD %			FWHM keV	 	PREPARED	ANAL- YZED	DETECTOR
Preparation	batch	707	1-044	2	σpr	ep erro	or 9.0	1 %	Refere	nce	Lab I	Notebooi	7071	pg.	044					
R306005-01			в17122					0.00	4 0.10	00							23	06/19/03	06/19	KPA-001
R306005-02			B171B8					0.00	4 0.10	00							21	06/19/03	06/19	KPA-001
R306005-05			LCS (Q	C ID	=449	71)		0.03	7 0.10	00								06/19/03	06/19	KPA-001
R306005-06			BLK (Q	C ID	=449	72)		0.00	4 0.10	00								06/19/03	06/19	KPA-001
R306005-07			Duplica (Qu		(R30) =449)	0.00	4 0.10	00							23	06/19/03	06/19	KPA-001
Nominal val	ues ar	nd tír	nits fr	om m	etho	d		1.0	0.10	00			•				180			

PROCEDURES		UTOT_KPA
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-044	Sample Preparation for Total Uranium by Kinetic
		Phosphorimetry, rev 4
	CP-928	Total Uranium by Kinetic Phosphorimetry, rev 5
L		

AVERAGES ± 2 SD MDA 0.011 ± 0.030
FOR 5 SAMPLES YIELD _____ ± ____

METHOD SUMMARIES
Page 13
SUMMARY DATA SECTION
Page 40

Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LMS</u>

Version <u>3.06</u>

Report date <u>07/21/03</u>

SAMPLE DELIVERY GROUP H2250

Test C Matrix SOLID

SDG 7529

Contact Melissa C. Mannion

LAB METHOD SUMMARY

CARBON 14 IN SOIL LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2250

RESULTS

RAW SUF-SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Carbon 14 Preparation batch 7071-044 7.50 B17122 R306005-01 7529-001 R306005-02 7529-002 B171B8 U 7529-003 B171C1-B U R306005-03 R306005-04 7529-004 В17218-В u 7529-005 LCS (QC ID=44971) ok R306005-05 BLK (QC ID=44972) U R306005-06 7529-006 7529-007 Duplicate (R306005-01) ok R306005-07 Nominal values and limits from method RDLs (pCi/g) 50 200-PW-2/200-PW-4 OU - Borehole Soil

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST		CLIENT	SAMPI	E ID		MDA pCi/	ALIG 9 9	PREF FAC		YIELD %	EFF %	COUNT	FWHM keV	 	PREPARED	ANAL - YZED	DETECTOR
Preparation	batch	7071	1-044	2σ	prep	error	10.0 %	Reference	e Lab	Noteboo	k 7071	pg.	044					
R306005-01			B17122				2.5	0.360)		100		100		43	07/07/03	07/09	LSC-007
R306005-02			B171B8				2.7	0.329)		100		100		42	07/07/03	07/10	LSC-007
R306005-03			B171C1	-B			2.6	0.355	ı		100		100		37	07/07/03	07/10	LSC-007
R306005-04			B17218	-В			2.6	0.339)		100		100		37	07/07/03	07/10	LSC-007
R306005-05			LCS (Q	D=4	4971)		4.3	0.329)		100		43			07/07/03	07/10	LSC-007
R306005-06			BLK (Q	: ID=4	4972)		2.8	0.329)		100		100			07/07/03	07/09	LSC-007
R306005-07			Duplica (Q		(30600 (4973)		2.7	0.337	•		100		100		44	07/07/03	07/10	LSC-007
Nominal valu	ues ar	d lin	nits fr	om met	hod		50	0.329	1				50		180			

PROCEDURES REFERENCE C14_COX_LSC
CP-251 Tritium/Carbon-14 Oxidation, rev 5

AVERAGES ± 2 SD MDA 2.9 ± 1.3

FOR 7 SAMPLES YIELD 100 ± 0

METHOD SUMMARIES
Page 14
SUMMARY DATA SECTION
Page 41

SAMPLE DELIVERY GROUP H2250

Test H Matrix SOLID SDG 7529 Contact Melissa C. Mannion

LAB METHOD SUMMARY

TRITIUM IN SOIL LIQUID SCINTILLATION COUNTING

Client Hanford Contract No. 630 Contract SDG H2250

RESULTS

	SUF- FIX PLANCHET	CLIENT SAMPLE ID	Tritiu	n	
Preparation batc	h 7071-044				
R306005-01	7529-001	B17122	211		
R306005-02	7529-002	B171B8	8.28		
R306005-03	7529-003	В171С1-В	4.95		
R306005-04	7529-004	B17218-B	5.31		
R306005-05	7529-005	LCS (QC ID=44971)	ok		
R306005-06	7529-006	BLK (QC ID=44972)	U		
R306005-07	7529-007	Duplicate (R306005-01)	ok		
R306005-08	7529-008	Spike (R306005-01)	ok	X	

200-PW-2/200-PW-4 OU - Borehole Soil

METHOD PERFORMANCE

SAMPLE ID		SUF- FIX	CLIENT	SAMPLE	ID		MDA pCi/	ALIQ 9	PREP FAC		YIELD %	EFF %	COUNT	FWHM keV	 	PREPARED	ANAL- YZED	DETECTOR
Preparation	batcl	707	1-044	2 <i>σ</i> p	rep	error	10.0 %	Reference	e Lab	Noteboo	k 7071	pg.	044				•	
R306005-01			в17122				0.40	20.6			33		60		37	06/27/03	07/03	LSC-004
R306005-02			B171B8				0.2	7 21.6			33		120		35	06/27/03	07/03	LSC-004
R306005-03			B171C1	-В			0.2	7 20.7			34		120		30	06/27/03	07/03	LSC-004
R306005-04			в17218	-B			0.26	21.1			34		120		30	06/27/03	07/03	LSC-004
R306005-05			LCS (Q	C ID=449	971)		0.28	20.0			33		120			06/27/03	07/03	LSC-004
R306005-06			BLK (Q	C ID=449	972)		0.29	20.0			33		120			06/27/03	07/03	LSC-004
R306005-07			•	ate (R30 C ID=449			0.42	2 20.4			32		61		37	06/27/03	07/03	LSC-004
R306005-08			•	(R30600! C ID=44!			0.45	20.9			33		51		38	06/27/03	07/04	LSC-004
Nominal valu	ies ar	nd lii	mits fr	om metho	od		400	20.0	•				25		180			

METHOD SUMMARIES Page 15 SUMMARY DATA SECTION Page 42

EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP H2250

Test	<u>H</u> Matrix <u>SOLID</u>
SDG	7529
Contact	Melissa C. Mannion

LAB METHOD SUMMARY, cont. TRITIUM IN SOIL LIQUID SCINTILLATION COUNTING

Client	<u>Hanford</u>
Contract	No. 630
Contract	SDG H2250

MDA <u>0.33</u> ± <u>0.16</u>

YIELD 33 ± 1

PROCEDURES REFERENCE 906.0_H3_LSC

CP-216

Tritium in Solid Samples by Azeotropic

FOR 8 SAMPLES

AVERAGES ± 2 SD

Distillation, rev 6

Lab id EBRLNE Protocol Hanford

Version <u>Ver 1.0</u> Form DVD-LMS

Version <u>3.06</u>

Report date <u>07/21/03</u>

METHOD SUMMARIES Page 16 SUMMARY DATA SECTION Page 43

SAMPLE DELIVERY GROUP H2250

Test NI L Matrix SOLID
SDG 7529
Contact Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2250

RESULTS

SAMPLE ID	TEST FIX PLANCH	T CLIENT SAMPLE ID	Nickel	63
Preparation	batch 7071-044			
R306005-01	7529-00	1 B17122	U	
R306005-02	7529-00	2 817188	U	
R306005-03	7529-00	3 B171C1-B	U	
R306005-04	7529-00	4 B17218-B	U	
R306005-05	7529-00	5 LCS (QC ID=44971)	ok	
R306005-06	7529-00	6 BLK (QC ID=44972)	U	
R306005-07	7529-00	7 Duplicate (R306005-01)	-	U

METHOD PERFORMANCE

LAB SAMPLE ID	RAW SUF- TEST FIX	CLIENT :	SAMPLE ID	MDA pCi/g	ALIQ 9	PREP FAC	DILU- TION	YIELD	EFF %	COUNT min	DRIFT KeV		PREPARED	ANAL- Yzed	DETECTOR
Preparation	batch 7071	-044	2ø prep error	10.0 %	Reference	Lab N	Notebool	c 7071	pg.	044			**		
R306005-01		B17122		5.2	0.200			89		100		43	07/01/03	0 7/09	LSC-004
R306005-02		817188		2.2	0.500			81		100		41	07/01/03	07/09	LSC-004
R306005-03		B171C1-I	3	2.1	0.500			87		100		36	07/01/03	07/09	LSC-004
R306005-04		B17218-I	3	2.1	0.500			87		100		36	07/01/03	07/09	LSC-004
R306005-05		LCS (QC	ID=44971)	2.3	0.500			96		66			07/01/03	07/04	LSC-004
R306005-06		BLK (QC	ID=44972)	1.9	0.500			96		100			07/01/03	07/04	LSC-004
R306005-07		•	te (R306005-01) ID=44973)	4.9	0.200			93		100		38	07/01/03	07/04	LSC-004
Nominal val	ues and lim	its fro	m method	30	0.500			30-10	5	50	 	180			

PROCEDURES	REFERENCE	NI63_LSC
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
İ	CP-280	Nickel-63 Purification, rev 0

AVERAGES ± 2 SD	MDA	3.0	±	2.9
FOR 7 SAMPLES	YIELD	90	±	

METHOD SUMMARIES
Page 17
SUMMARY DATA SECTION
Page 44

Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LMS</u>

Version <u>3.06</u>

Report date <u>07/21/03</u>

SAMPLE DELIVERY GROUP H2250

SDG <u>7529</u> Contact <u>Melissa C. Mannion</u>

REPORT GUIDE

Clie	ent	Hani	Hanford						
Contra	act	No.	630						
Case	no	SDG	H2250						

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.
 - QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.
- * All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

REPORT GUIDES
Page 1
SUMMARY DATA SECTION
Page 45

SAMPLE DELIVERY GROUP H2250

SDG 7529 Contact <u>Melissa C. Mannion</u>

REPORT GUIDE

Client	Hanford
Contract	No. 630
Case no	SDG H2250

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

REPORT GUIDES
Page 2
SUMMARY DATA SECTION
Page 46

SAMPLE DELIVERY GROUP H2250

SDG <u>7529</u>
Contact <u>Melissa C. Mannion</u>

REPORT GUIDE

Client	Hanfo	ord
Contract	No. 6	530
Case no	SDG I	12250

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

REPORT GUIDES
Page 3
SUMMARY DATA SECTION
Page 47

SAMPLE DELIVERY GROUP H2250

SDG 7529
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hanford	_
Contract	No. 630	
Case no	SDG H2250	

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- * ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

REPORT GUIDES
Page 4
SUMMARY DATA SECTION
Page 48

SAMPLE DELIVERY GROUP H2250

SDG 7529
Contact Melissa C. Mannion

GUIDE, cont.

Client	<u>Hanford</u>
Contract	No. 630
Case no	SDG H2250

DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

- J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
- B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

- L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
- H Similar to 'L' except the recovery was high.
- P The RESULT is 'preliminary'.
- X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
- 2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

REPORT GUIDES
Page 5
SUMMARY DATA SECTION
Page 49

SAMPLE DELIVERY GROUP H2250

SDG 7529
Contact Melissa C. Mannion

GUIDE, cont.

Client	Hani	ford	
Contract	No.	630	
Case no	SDG	H2250	

DATA SHEET

- * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

REPORT GUIDES
Page 6
SUMMARY DATA SECTION
Page 50

SAMPLE DELIVERY GROUP H2250

SDG <u>7529</u> Contact <u>Melissa C. Mannion</u>

REPORT GUIDE

Client	Han	ford	
Contract	No.	630	
Case no	SDG	H2250	

LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 - 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

- 2. The error of ADDED.
- 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.

REPORT GUIDES
Page 7
SUMMARY DATA SECTION
Page 51

SAMPLE DELIVERY GROUP H2250

SDG 7529
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hani	ford
Contract	No.	630
Case no	SDG	H2250

DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.
 - If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.
- * The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.
 - If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- * The second limit for the RPD is the larger of:
 - 1. A fixed percentage specified in the protocol.

REPORT GUIDES
Page 8
SUMMARY DATA SECTION
Page 52

SAMPLE DELIVERY GROUP H2250

SDG 7529 Contact Melissa C. Mannion

GUIDE, cont.

Client	Hanford	
Contract	No. 630	• • • • • • • • • • • • • • • • • • • •
Case no	SDG_H2250	

DUPLICATE

- 2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.
- * The RPD is underlined if it is greater than either limit.
- * If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

REPORT GUIDES
Page 9
SUMMARY DATA SECTION
Page 53

SAMPLE DELIVERY GROUP H2250

SDG 7529
Contact Melissa C. Mannion

REPORT GUIDE

=		
Client	<u>Hanford</u>	
Contract	No. 630	
Case no	SDG H2250	

MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.
 - If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.
- * An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.
 - An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.
- * REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 - 1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.
 - If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
 - 2. The error of ADDED.
 - 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits

REPORT GUIDES

Page 10

SUMMARY DATA SECTION

Page 54

SAMPLE DELIVERY GROUP H2250

SDG <u>7529</u> Contact Melissa C. Mannion

GUIDE, cont.

Client	Hanford	
Contract	No, 630	
Case no	SDG H2250	•

MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

The recovery is underlined (out of spec) if it is outside either of these ranges.

REPORT GUIDES Page 11 SUMMARY DATA SECTION

Page 55

SAMPLE DELIVERY GROUP H2250

SDG 7529
Contact Melissa C. Mannion

REPORT GUIDE

Clie	nt	Hani	ord	
Contra	ıct	No.	630	
Case	no	SDG	H2250	

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

REPORT GUIDES
Page 12
SUMMARY DATA SECTION
Page 56

SAMPLE DELIVERY GROUP H2250

SDG <u>7529</u>
Contact Melissa C. Mannion

GUIDE, cont.

Client	Hanford
Contract	No. 630
Case no	SDG H2250

METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
- * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

- * Aliquots are underlined if less than the nominal value specified for the method.
- * Prepareation factors are underlined if greater than the nominal value specified for the method.
- * Dilution factors are underlined if greater than the nominal value specified for the method.
- * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
- * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
- * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

REPORT GUIDES
Page 13
SUMMARY DATA SECTION
Page 57

SAMPLE DELIVERY GROUP H2250

SDG 7529 Contact <u>Melissa C. Mannion</u>

GUIDE, cont.

Client	Hanford
Contract	No. 630
Case no	SDG_H2250

METHOD SUMMARY

- * Count times are underlined if less than the nominal value specified for the method.
- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1 \div 3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

REPORT GUIDES
Page 14
SUMMARY DATA SECTION
Page 58

SAMPLE DELIVERY GROUP H2250

SDG 7529 Contact Melissa C. Mannion

GUIDE, cont.

Client	Hanford
Contract	No. 630
Case no	SDG H2250

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

REPORT GUIDES
Page 15
SUMMARY DATA SECTION
Page 59

FH-Central Plateau Project	CHA	IN OF CUST	ODY/S	AMI	PLE	ANAL	SIS	KŁŲUĿ	1 1	L			
Collector Johansen/Pope/Pfister	Company LC Huls		Telephon 373-39					Project Coord TRENT, SJ	linator	Price Code	8N	Data Tur	_
Project Designation 200-PW-2/200-PW-4 OU - Borchole Soil Sampling	Sampling 216-A-1	Location 10 (C3247) 62.5-65 ft	H22	<u>S</u> C	<u>) (</u>	752	9)	SAF No. F03-006 4		Air Quality		45 !	Days
Ice Chest No. ERC 02 000	Field Logi HNF-N-			CO/ 1175	A 04ES1	o		Method of Sh Federal Exp	•	· 			
Shipped To EBERLINE SERVICES (Formerly TMA)	Offsite Pro	operty No. RS	R 10.	71	89			Bill of Ladin	/Air Bill	No. No		····	
POSSIBLE SAMPLE HAZARDSREMARKS TWD G	+0	Frescryation	Cool 4C	Cool	14C	None	Cool 4	Cool 4C	Cool	ac coolac	i None	,Nouse	None
Special Mandling and/or Stoners B12133;	26	Type of Container	aG	- ×	G	₽G	¥G	∎G	∎G	₃G	aG	aG	aG
Special Handling and/or Storage N/A B17134	·	io. of Container(s)	1			1	1	1	1	7	1	1	1
IVA.		Volume	60mL	125	inL	60mL	60m)	1 13	60m	L 60mL	60mL	60mL	60mL
Sample analysis			See item (1) in Special Instructions.	See inter Spec Instruc	ciel	See item (3) in Special		See item (4) i Special Instructions	NO2/NO 353		See item (5) in Special Instructions	See item (6) in Special Instructions.	Tritium - H3
Sample No. Matrix * San	nple Date	Sample Time											
B17116 5-29-83 SOIL 5	7703	1030									X	×	×
	-27-03	1030				7117		37 ·03_			X	_×_	\
B1182 5011 5	-97-03	1110			=		LINI	5-17-03	-		X	×_	X
		<u> </u>											Matrix *
<u> </u>		PKW 58	te/Time 7-03-141 te/Time /L	5	** The report ! (1) Al. (2) Sc.	cohols, Glycol	to achiev and diese le, & Kete	e a detection limit of range compound ones - 8015 (1-Br	ls from WT tanol Diet 270A (Add	byl other, Ethylene I On) (2 Butoxyeth	giyosi, Mathan	ol} e	S=Soil SE=Sediment SO=Solid SI=Shadge W = Water
Relinquished By/Removed From Date/Time 1000 Received By/Stored In Date/Time 1000 Rece							DSP Drown Soliste ST Drown Soliste WT-Wipe L-Liquid V-Vegennion						
Redinquished By/Removed From Date Time Received By/Stored in 1000 5-252 Gamma 241;						a Spec - Add- sotopic Plutoni	on {Cesin um; Isoto	um-134, Radium-1 opic Uranium	26, Radius	ium-152, Europium n-228, Tin-126}; T Thorium (Thorium-	otal Uranium; A	unericium-	X=Other
Relinquished By/Removed From Date/Tume Rece					(b) Te	ickel-63	Nept	1-89,90 - 1001 S	, isotopic	HOURT (I DOLUM)			<u> </u>
LABORATORY Received By SECTION			Tit	ie								Date/Time	
FINAL SAMPLE Disposal Method DISPOSITION						Dispo	sed By				 	Date/Time	

THE RESIDENCE ASSESSMENT OF STREET

FH-Centra	al Plateau	Project	C	HAIN OF CUS	ΓODY/S	AMPL	E ANALY	YSIS	REQUEST	r	F0:	3-006-134	Page 1	of 1
Collector Johansen/Pope/Pfi			Comp	any Contact Hulstrom	Telepho 373-3	ne No.			Project Coordi TRENT, SJ		Price Code	8N		гратовий
Project Designation 200-PW-2/200-PV	Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling 216-B-12 (C3246); (14.5'-17')				n H2	2250 (7.529 SAF No. F03-006					Air Quality			Days
Ice Chest No.	SEE	asre-		Logbook No. F-N-3361		COA 117504E	ES10	-,	Method of Ship Federal Expr	ess				
Shipped To EBERLINE SERV			Officit	e Property No.	A030	フ	70	,	Bill of Lading	Air Bill N	°. SE	E OS	PC	
POSSIBLE SAMP	LE HAZARD べ	S/REMARKS		Preservation	Cool 4C	Cool 4C		Nos	Nome	None				
Special Handling	Vo F	5171Ng		Type of Container	äG	aG	∕ sG	#C	₽G	aG				
obecini mindinia	None			No. of Container(s)	1	<u> </u>	6 1	1	1	1				
				Volume	60mL	125 T	60mL	60m		60mL				
	,	SAMPLE ANAL	YSIS		See item (1) in Special Instructions	Salarya (2)) in NO2/NO3 - 353.2; Oil & Greans - 413.1; Chromium Hex - 7196	See item Speci Instruct	al Special	Tritium - H	B	7'.		
Sample No		Matrix *	Sample Date	Sample Time	/	-						Ties	p:	
B171B8	J.	SOIL	5-29-0		/·			Х	×	×		ורוש	09	
					·							-	<u> </u>	
	`.	· .		•		 				-				
										·				
Relinquished By/Remov	Date/Time 1516 Received By/Stored In Date/Time 1516 Received By/Stored In Date/Time 1517 Received By/Stored In Date/Time					515 :: (4) (2) (3) (3) (4) (4) (2) (2)	SPECIAL INSTRUCTIONS ** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. ** The laboratory is to report both kerosene and diesel range compounds from WTPH-D analysis. (4) Alsehols, Glycole, & Ketones—8015-(1-Butanot, Diethyl other, Ethylene glycol, Methanol) (2) Sami-VOA~8270A(TCL); Semi-VOA—8270A (Add-On) {2-Butoxyethanol, Triburyl phosphate}; TPH-Diesel Range—WTPH-D, TPH-Gasoline Range—WTPH-G (3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on {Cesium-134, Radium-226, Radium-228, Tin-126}; Total Uranium; Americium-241; Isotopic Platonium; Isotopic Uranium (4) Technetium-99; Strontium-89,90 — Total Sr, Isotopic Thorium {Thorium-232}; Carbon-14; Iodine-129; Nickel-63; Neptunium-237							Matrix * S-Soil SE-Sodiment SO-Solid SO-Solid SO-Solid DI-Drum Solids DI-Drum Liquids T-Tissue WI-Wipc L-Liquid V-Vegetation X-Other
SECTION	Received By				Ti	rae							Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method					. —	Dispo	sed By					Date/Time	

FLUOR Hanfor	d Inc.	CEN	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST F03-006-179							of <u>1</u>		
Collector Johansen/Pope/Pfister	- 0	Comp	nny Contact Huistrom	Telepho 373-3	ne No.			Project Coordinator TRENT, SJ	Price C	ode 8N	Data Tur	
Project Designation 200-PW-2/200-PW-4 OU - B			ing Location -B-12 (C3246)	2250	(752	7529 SAF No. F03-006			Air Quality			Days ———
Ice Chest No.						.0		Method of Shipment Federal Express	•			
Shipped To EBERLINE SERVICES (For	rmerty TMA)	Offsite N/A	Property No.					Bill of Lading/Air B N/A	ill No.			
Possible Sample HAZA	earfive:		Preservation	None	None							
SEE Note (Type of Container	aG	aG							
Special Handling and/or S	_		No. of Container(s)	1	1							
N.	he		Volume	60mL	60mL							
	SAMPLE ANALY	YSIS		See item (1) is Special Instructions.	1							
Sample No.	Matrix *	Sample Date	Sample Time									
B171C1-B	SOIL	6-3-03		X	X							
B17218-B	SOIL	6-3-0	03 1015	X	X							<u> </u>
CHAIN OF POSSESSIO	NC	Sign/Prin	t Names		SPEC	TAL INSTRU	UCTIO	ONS ion limit of 50.0 pCi/g for	C-14 Report	kemsene and diesel	range	Matrix *
Received By/Stored In						S=Soil SE=Seniment SO=Soild SI=Shadge W = Water O=Oil A=Air DS=Drum Liqu IT=Tissue WI=Wipe L=Liquid V=Vegetation X=Other						
FINAL SAMPLE Disposal N DISPOSITION	Acthod					Dispos	sed By				Date/Time	

							<u> </u>				-	006 156	Page 1	of 1	
FH-Central Plates	u Project		HAIN OF CUS			ANAL	YSIS	_			. F03-	-006-179	Lafe I		
Collector Johansen/Pope/Pfister (Momas			Company Contact Telephone No. LC Hulstrom 373-3928				Project Coordinator TRENT, SJ			ator	Live Cone OTA			Turnaround	
Project Designation 200-PW-2/200-PW-4 OU - Borchole Soil Sampling 216-B-12 (C3246)									F No. 3-006		Air Quality 📋		45 Days		
ce Chest No.			Logbook No. F-N-3361	"	. COA 117504ES	:10			thod of Ships Federal Expres						
Shipped To USCI EBERLINE SERVICES (For	merty TMA)	Offsit	e Property No.		;		:		of Lading/A N/A	Lir Bill N	lo.	•	,		
POSSIBLE SAMPLE HAZA			Preservation	Cool 4C	Cool 4C	None	Cool	4C	CoolAC	None	None	None			
Special Handling and/or S	thruses.		Type of Container	aG	aG	aG	≢G	• /	•C	æG	aG	a.G			
Special Handling and S	norage		No. of Container(s)	1	1	1	33	7.	1	1	10	(1)			
•	· .		Volume	60mL	60mL	60mL	60п	aL	60mL	60mL	60mL	60mL			
	SAMPLE ANALYS	IS		Soe item (1) is Special Instructions.	Special	95e item(3) in Special Histructions.	See item Speci Instruct	ial.	NO2/NO3 - 353.2; Oil & Grease - 413.1; Chromium Hex - 7196	See item (5) Special Instruction	Special	Tritium - H3			
Sample No.	Matrix *	Sample Date	Sample Time												
B17218	SOIL	6-3-03	1015							X	×	×			
BITICI	<u> 50i1</u>	6-8-03	3 1015					_		×	×	×			
CHAIN OF POSSESSIO	DN .	Sign/Pri	at Names		lane	CYAY PICTY		ONIO						Matrix	
Relinquished By/Removed From Relinquished By/Removed From	Date/Time (420) Date/Time	Received By/Sto	and in the the	T	The combe in	pounds from W net by the lab du Alcohols Olyce	e a detect TPH_D a se to the s	tion lis malysi radi ci	imit of 50.0 pCi/ iss. FH acknowl haracteristics. x=8015 {}-Buta	ledges that	Report kerosens holding times (le	ss than 14 day	nge s) may not nol}	S=Solt SE=Sedime SO=Solid SI=Sladge W = Water	
Relinquished By/Removed From	Date/Time	Received By/Sto	ored In	(2) Semi-VOA 8270A (TCL), Semi-VOA 8270A (Add On) (2) Butoxyethanol, Tribu TPH-Diesel Range WTPH-D, TPH Gasolino Range WTPH-G (3) ICP Metals 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Sel					`	(27.17) (60.000)					
Relinquished By/Removed From	Date/Time	Received By/Sta	ISDN44-1- COLON CO. A TOTAL COLON OF THE COL				llium, Dismuth, B	eren, Copper.	Nickel};	T=Tissue: Wt=Wipe L=Liquid					
Relinquished By/Removed From	nquished By/Removed From Date/Time Received By/Stored In Date/Time			(So (5)	il) - 9045; Total Gamma Spectro	Cyande oscopy {	901 Cesiu	10 m-137, Cobalt-	60, Europi	um-152, Europiu	n-154, Europiu	m-155);	V=Vegetal X=Other		
Relinquished By/Removed From	Date/Time	Received By/St	ored In	Date/Time	241	: Isotopic Pluto	ninani: Iso	MODIC	Uranium	•	-228, Tm-126}; 1	•			
LABORATORY Received B	у			7	itle CA	7007-14,16	אלוהגי-	123,	Dickel-103	اللَّ وَعَالِمُ	etopicThorium Nicon-237	1140 inte	Date/Time		
FINAL SAMPLE Disposal N	fethod					Disp	osed By		• • • • • • • • • • • • • • • • • • •		·		Date/Time		

FH-Central Plates	u Project	C	HAIN OF Ć	USTODY	SAM	PLE	ANAL	YSIS	RI	EQUEST	•		F03	-006-179	Page 1	of <u>1</u>
			Company Contact Telephone No. LC Hulstrom 373-3928						Project Coordinator TRENT, SJ			Price Code		8N	Data Tu	
Project Designation	Designation PW-2/200-PW-4 OU - Borehole Soil Sampling Sampling Location 216-B-12 (C3246)			H2250 (7529)					SAF No. F03-006			Air Q	uality		45	Days
Ice Chest No.		HN	Logbook No. F-N-3361		C0 117:	A 504ES1	10			ethod of Ship Federal Expre				r		
Shipped To MJ 5-3-C	B 7 WSCI	Offsite	e Property No.							ill of Lading/	Air Bill	No.		•		•
POSSIBLE SAMPLE HAZA	RDS/REMARKS		Preservatio	Cool 40	: c ₀	ol 4C	None	Cool	4C	Cool 4C	Non	•	None	Nanc		
Special Handling and/or S	torage		Type of Conta	iner aG		G	#G	aG)	aG	æG		aG	36		
			No. of Contain	er(s)		1	1	2		U	1		1	1		
			Volume	60mL	66	OmL	60mL	60m	<i>i</i> L	60mL	60m	L	SOME?	60mL		
	SAMPLE ANAL	YSIS		See item (1 Special Instruction	Sp	em (2) in ecial actions,	See item (3) in Special Instructions.	See item Speci Instruct		NO2/NO3 - 353.2; Oil & Grease - 413.1; Chromium Hex - 7196	See item Speci Instruct	(5) in Soptions.	ces (6) in lections actions	Tritium - H3		·
Sample No.	Matrix *	Camala Data		しり	V	J	W	L)	STL	Last and		a la Colonia	Carrier and Carrier		191.204.504
В17218	SOIL	Sample Date (0-3-03	Sample T				メ									
BNICI	Soil	(0-3-0)				}	7		<u> </u>	X	/-	-			<u> </u>	
									<u></u>							
			_ -				<u> </u>	<u> </u>			· ·			ļ		ļ. ·
CHAIN OF POSSESSIC		Sign/Prin	t Names			SPEC	LAL INSTI	RUCTIO	ONS	<u> </u>	<u> </u>	<u> </u>		J	<u> </u>	Matrix
Relinquished By/Removed From (1785 / 1864) 45 Relinquished By/Removed From	Date/Time /900		65 KE	Date/Time	1/400 3/83	compo be me	ounds from W It by the lab du	TPH-D and to the re	nalys adl c		edges the	et bolding t	imes (le	ss than 14 days) may not	S=Soil SE=Sodies SO=Solid SI=Sludge W = Water
Relinquished By/Removed From	Date/Time	Received By/Sto	red in	Date/Time	(3) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenius ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenius ICP Metals - 6010A (Supertrace Add-On) {Antimony, Beryllium, Bismuth, Boron, Copper, N Mercury - 7471 - (CV)					hosphate);	O=O# A=Air DS=Dress					
Relinquished By/Removed From	Date/Time	Received By/Sto	red In	Date/Time						um, Silver}; Du-Dress						
Relinquished By/Removed From	Date/Time	Received By/Sto	red In	(4) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Am Date/Time (Soil) - 9045; Total Cyanide - 9010 (5) Gamma Spectroscopy (Cestum-137, Coban-60, Europhum-157, Europhum-154;					F154; Europius	-155); <	m					
Relinquished By/Removed From	Date/Time	Received By/Sto	red in	Date/Time			us Spec - Add Isotopic Plutor			134, Radium 23 Litanium	6 , Radi o	n-228, Tin	-126]; 1	oui Uradon, 1	tracricium /	Ψ-3
LABORATORY Received B	у	<u> </u>			Title	1			_		· i		 -	1	Date/Time	<u></u>
FINAL SAMPLE Disposal M DISPOSITION	lethod						Disp	esed By		·			·		Date/Time	



ANALYTICAL SERVICES GROUP

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

Client: FLR	_ Date/Time received _	1000	6-5-03						
coc No. F03-006-107				_					
	AT (Days) 45 P.O.	Received	Yes [] No f	1					
INSPEC				÷					
Custody seals on shipping container intact?		No[]	N/A Į]					
2. Custody seals on shipping container dated 8	•	No []	N/A []					
3. Custody seals on sample containers intact?	Yes [/	No (]	N/A [Ţ					
4. Custody seals on sample containers dated 8	Custody seals on sample containers dated & signed? Yes [No []								
5. Packing material is:	Wet[]	Dry []	}						
6. Number of samples in shipping container: _									
7. Number of containers per sample:									
8. Paperwork agrees with samples?	Yes [V]	No[]							
9. Samples have: Tape [] Hazard labels []									
10. Samples are: In good condition [\ Leaking [] Broken Container [] Missing []									
11. Samples are: Preserved [] Not preserve	1. Samples are: Preserved [] Not preserved [Preservative								
12. Describe any anomalies:									
									
13. Was P.M. notified of any anomalies? Yes	•	ate _ Time: _	*						
14. Received by	Date:			=					
	Customer Sample	onm.	mR/hr wip						
No. cpm mR/hr wipe	No	cpm ——————	mR/hr wip	9					
B17122 150									
									
	· · · · · · · · · · · · · · · · · · ·								
									
Ion Chamber Ser. No.	Celibration dat	6	- 						
Alpha Meter Ser. No.	Calibration dat	e		_					
Beta/Gamma Meter Ser. No. 106261		2-14							

E BERLINE

ANALYTICAL SERVICES GROUP

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

Client: FLR	_ Date/Time received _	1000	6-4-03							
F02 006-134										
COC NO	45 80									
Container I.D. No Requested TA	AT (Days) 7 P.O	. Received	Yes [] No []							
INSPEC	TION									
1. Custody seals on shipping container intact?	Yes L	No[]	N/A []							
2. Custody seals on shipping container dated 8	k signed? Yes [No[]	N/A []							
3. Custody seals on sample containers intact?	Yes [2]	No []	N/A []							
 Custody seals on sample containers dated 8 	Custody seals on sample containers dated & signed? Yes [No []									
5. Packing material is:	Wet[]	Dry []								
6. Number of samples in shipping container:										
7. Number of containers per sample:	(Or see CoC		_)							
8. Paperwork agrees with samples?	Yes [/	_ No []								
9. Samples have: Tapa [] Hazard labels []	Rad labels [Appro	priate samp	ile labels [L							
10. Samples are: In good condition [Leai	king [] Broken Con	tainer []	Missing []							
11. Samples are: Preserved [] Not preserve	d [VI Preservative									
12. Describe any anomalies:										
13. Was P.M. notified of any anomalies? Yes	I No [] D	ate	To 2 C							
14. Received by (1)	Date:	_ Time:	[000]							
Customer Sample	Customer Sample									
No. cpm mR/hr wipe	•	cpm n	nR/hr wipe							
B17188 Z40										
										
										
ion Chamber Ser. No.	Calibration dat	e								
Alpha Meter Ser. No.	Calibration date									
Beta/Gamma Meter Ser. No. 106761	=	9 11								
ASSESSMENT OF THE PROPERTY MINISTER STATE OF THE PROPERTY OF T	_ Calibration dat	a X-(1	4-03							

EBERLINE

ANALYTICAL SERVICES GROUP

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

Client:	FLR	Date/Time received	1000	6-6-03					
CoC N	F03-006-17-9								
Contain	ner I.D. No. ECC-OI-0 SCI Requested TA	T /Dava/YS P.O.	Received	Yes [] No []					
Correan									
	INSPEC Custody seals on shipping container intact?	Yes [No[]	N/A []					
1. 2.	Custody seals on shipping container intact? Custody seals on shipping container dated &	- · · · · ·	No[]						
3.	Custody seals on sample containers intact?		No (]						
4.	Custody seals on sample containers dated &		No []						
5.	Packing material is:	vet[]	Dry [
6.	Number of samples in shipping container:	7							
7.	Number of containers per sample:			١					
8.	Paperwork agrees with samples?	Yes I	No []	<i>'</i>					
9.				nla lahala r					
10.	Samples have: Tape [] Hazard labels []								
1	Samples are: In good condition [Y Leak								
11.	Samples are: Preserved [] Not preserved			<u> </u>					
12.	Describe any anomalies:								
13.	Was P.M. notified of any anomalias? Yes	[] No[] Di	ate	,					
14.	Received by	Date:	Time: _	*					
	7-7-7		<u> </u>						
	er Sample No. cpm mR/hr wipe	Customer Sample No.	cpm i	mR/hr wips					
، ا - کار .		1401		Wipa					
تلكل	71C1-B 240	<u> </u>							
31	7218-18 <u>240</u>								
	·								
lon Cha	mber Ser. No.	Calibration dat	e						
•	leter Ser. No.	-							
	mma Meter Ser. No.	Calibration data							
	CP-01:2, 02-11-03			nuclear services'					



11 July 2003

Mr. Steve Trent Fluor Hanford Inc. 825 Jadwin Ave. Richland, WA 99352

Subject: Contract No. 630

Analytical Data Package

Dear Mr. Trent:



Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0305L537
SDG#	H2250
SAF#	F03-006
Date Received	6-4-03
# Samples	3
Matrix	Soil
Volatiles	X
Semivolatiles	X
Pest/PCB	X
DRO/GRO/KRO	X
Herbicides	X
GC Alcohol	X
Metals	X
Inorganics	X
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	\$

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,

Lionville Laberatory Incorporated

Orlette S. Johnson Project Manager

Lionville Laboratory, Inc. VOA ANALYTICAL DATA PACKAGE FOR TNUHANFORD F03-006 H2250

DATE RECEIVED: 06/04/03 LVL LOT # :0305L537

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
			·		<u></u>	
B17122	001 M:	L S	03LVH126	05/27/03	N/A	06/10/03
B17122	001 MS M:	L S	03LVH126	05/27/03	N/A	06/10/03
B17122	001 MSD M1	. s	03LVH126	05/27/03	N/A	06/10/03
LAB QC:						
VBLKWZ	MB1	S	03LVH126	N/A	N/A	06/09/03
VBLKWZ	MB1 BS	S	03LVH126	N/A	N/A	06/09/03





Client: TNU-HANFORD F03-006

LVL#: 0305L537

SDG/SAF # H2250/F03-006

W.O. #: 11343-606-001-9999-00

Date Received: 05-31-2003 & 06-04-2003

GC/MS VOLATILE

One (1) soil sample was collected on 05-27-2003.

The sample and its associated OC samples were analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8260B for client specified volatile target compounds on 06-09,10-2003.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

- All results presented in this report are derived from a sample that met LvLI's sample 1. acceptance policy.
- 2. The sample was analyzed within holding time.
- 3. Non-target compounds were detected in the sample.
- 4. The sample required a medium level analysis due to high levels of non-target compounds. The forms do not reflect the correct dilution factors due to programming limitations; however, the results are correct.
- 5. All surrogate recoveries were within EPA OC limits.
- 6. All blank spike recoveries were within EPA OC limits.
- 7. All matrix spike recoveries were within EPA OC limits.
- 8. The method blank contained the common laboratory contaminant Methylene Chloride at a level less than the CRQL.
- 9. Internal standard area and retention time criteria were met.
- 10. A spectral search was conducted for the compound 2-Pentanone; this compound was not identified in the sample.
- 11. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

J. Michael Taylor

President

Lionville Laboratory Incorporated

som\group\data\voa\tnu-hanford\0305-537.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 8 pages. 02

DATA QUALIFIERS

- U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 31.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I = Interference.
- NQ = Result qualitatively confirmed but not able to quantify.
- A = Indicates that a TIC is a suspected aldol-condensation product.
- N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y = Additional qualifiers used as required are explained in the case narrative.



ABBREVIATIONS

BS	25	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions
		and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Suffix added to sample number to indicate that results are from a diluted analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP, Z = Indicates Spiked Compound.



TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quan modifications:

- MP Missed Peak: manually added peak not found by automatic quan program.
- PA Peak Assignment: quan report was changed to reflect correct peak assignment.
- R1 Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.
- SP Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.
- PI Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.



DATA QUALIFIERS

- U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 31.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I = Interference.
- NO = Result qualitatively confirmed but not able to quantify.
- A = Indicates that a TIC is a suspected aldol-condensation product.
- N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y = Additional qualifiers used as required are explained in the case narrative.



ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions
		and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Suffix added to sample number to indicate that results are from a diluted analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP, Z = Indicates Spiked Compound.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quan modifications:

- MP Missed Peak: manually added peak not found by automatic quan program.
- PA Peak Assignment: quan report was changed to reflect correct peak assignment.
- RI Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.
- SP Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.
- PI Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.



Lionville Laboratory, Inc.

Volatiles by GC/MS, HSL List Report Date: 07/07/03 10:56 Client: TNUHANFORD F03-006 H2250 Work Order: 11343606001 Page: 1a RFW Batch Number: 0305L537

Sample	Cust ID:	B17122	!	В17122		B17122		VBLKWZ		VBLKWZ BS		
Natrix: D.F.: 1.82	Sample RFW#:	001	-	001 MS	,	001 MSD	ı	03LVH126-M	B1	03LVH126-M	в1	
Units:	-											
Units: Level: MED NED NE	D.F.:	1.8	2		2	1.8	2	2.0	0		0	
Level: MED MED MED MED MED MED MED MED	Units:	uq/K	(q	uq/K	ία	ug/K	q	ug/K	a			
Surrogate Bromofluorobenzene 92 \$ 88 \$ 92 \$ 94 \$ 95 \$ 88 \$ 88 \$ 86 \$ 89 \$ 90 \$ \$ \$ \$ \$ \$ \$ \$ \$	•	_	_	_	_	_	3	-	_	-	-5	
Surrogate Bromofluorobenzene 92 \$ 88 \$ 92 \$ 94 \$ 95 \$ 88 \$ 88 \$ 86 \$ 89 \$ 90 \$ \$ \$ \$ \$ \$ \$ \$ \$	÷											
Recovery 1,2-Dichloroethane-d4	Toluene-d8	86	8	80	ક	83	8	86	કૃ	84	8	
Chloromethane 1300 U 1300 U 1300 U 1200 U 1200 U 1200 U 1700 U 17	-	_	ક્ષ	88			ક			95	_	
Chloromethane							-					
Bromomethane												:===== == fl
Bromomethane	Chloromethane	1300							-		_	
Vinyl Chloride	Bromomethane	1300	Ų		Ü	1300	U		_		U	
Methylene Chloride 660 U 660 U 660 U 340 J 400 JB Acetone 1300 U 1300 U 1300 U 1200 U 1200 U Carbon Disulfide 660 U 660 U 660 U 660 U 620 U 620 U 1,1-Dichloroethene 660 U 81 % 79 % 620 U 84 % 1,1-Dichloroethane 660 U 660 U 660 U 660 U 620 U 620 U 1,2-Dichloroethane (total) 660 U 660 U 660 U 660 U 620 U 620 U 1,2-Dichloroethane 660 U 660 U 660 U 620 U 620 U 2-Butanone 1300 U 1300 U 1300	Vinyl Chloride	1300	-								-	
Methylene Chloride 660 U 660 U 660 U 340 J 400 JB Acetone 1300 U 1300 U 1300 U 1200 U 1200 U 1200 U Carbon Disulfide 660 U 660 U 660 U 660 U 620 U 620 U 620 U 1,1-Dichloroethene 660 U 81 % 79 % 620 U 84 % 79 % 620 U 84 % 1,1-Dichloroethane 660 U 660 U 660 U 660 U 620 U 620 U 1,2-Dichloroethane (total) 660 U 660 U 660 U 660 U 620 U 620 U 1,2-Dichloroethane 660 U 660 U 660 U 620 U 620 U 620 U 1,2-Dichloroethane 660 U 660 U 660 U 620 U 620 U 620 U 2-Butanone 1300 U 1300 U 1300 U 1200 U 1200 U 1200 U 1,1,1-Trichloroethane 660 U 660 U 660 U 620 U 620 U 620 U Carbon Tetrachloride 660 U 660 U 660 U	Chloroethane											
Carbon Disulfide 660 U 660 U 660 U 620 U 620 U 620 U 1,1-Dichloroethene 660 U 81 % 79 % 620 U 84 % 1,1-Dichloroethane 660 U 660 U 660 U 620 U 62	Methylene Chloride	660	U	660	U	660	Ų			400	JB	
Carbon Disulfide 660 U 660 U 660 U 620 U 620 U 620 U 1,1-Dichloroethene 660 U 81 % 79 % 620 U 84 % 1,1-Dichloroethane 660 U 660 U 660 U 620 U 62	Acetone	1300	Ū				Ū			1200		
1,1-Dichloroethane 660 U 660 U 660 U 660 U 620 U </td <td>Carbon Disulfide</td> <td>660</td> <td>U</td> <td>660</td> <td>U</td> <td>660</td> <td>Ū</td> <td>620</td> <td>U</td> <td>620</td> <td>U</td> <td></td>	Carbon Disulfide	660	U	660	U	660	Ū	620	U	620	U	
1,1-Dichloroethane 660 U 660 U 660 U 660 U 620 U </td <td>1,1-Dichloroethene</td> <td>660</td> <td>U</td> <td>81</td> <td>ક</td> <td>79</td> <td>ક</td> <td>620</td> <td>U</td> <td>84</td> <td>४</td> <td></td>	1,1-Dichloroethene	660	U	81	ક	79	ક	620	U	84	४	
1,2-Dichloroethene (total) 660 U 660 U 660 U 620 U <td< td=""><td>1,1-Dichloroethane</td><td>660</td><td>Ū</td><td></td><td>_</td><td></td><td>U</td><td>620</td><td>U</td><td>620</td><td>Ū</td><td></td></td<>	1,1-Dichloroethane	660	Ū		_		U	620	U	620	Ū	
1,2-Dichloroethane 660 U 660 U 660 U 620 U 620 U 2-Butanone 1300 U 1300 U 1300 U 1200 U 1200 U 1,1,1-Trichloroethane 660 U 660 U 660 U 620 U 620 U Carbon Tetrachloride 660 U 660 U 660 U 620 U 620 U Bromodichloromethane 660 U 660 U 660 U 620 U 620 U 1,2-Dichloropropane 660 U 660 U 660 U 620 U 620 U 1,2-Dichloropropene 660 U 660 U 660 U 620 U 620 U 1,2-Dichloropropene 660 U 660 U 660 U 620 U 620 U 1,2-Dichloropropene 660 U 660 U 660 U 620 U 620 U 1,2-Dichloropropene 660 U 660 U 660 U 620 U 620 U 1,2-Dichloropropene 660 U 660 U 660 U 620 U 620 U 1,2-Dichloropropene 660 U 660 U 660 U 620 U 620 U	1,2-Dichloroethene (total)	660	U	660	U	660	Ū	620	U			
2-Butanone 1300 U 1300 U 1300 U 1200 U <td>Chloroform</td> <td>660</td> <td>Ų</td> <td>660</td> <td>Ū</td> <td>660</td> <td>U</td> <td>620</td> <td>U</td> <td>620</td> <td>U</td> <td></td>	Chloroform	660	Ų	660	Ū	660	U	620	U	620	U	
1,1,1-Trichloroethane 660 U 660 U 660 U 620 U 620 U Carbon Tetrachloride 660 U 660 U 660 U 660 U 620 U 620 U Bromodichloromethane 660 U 660 U 660 U 660 U 620 U 620 U 1,2-Dichloropropane 660 U 660 U 660 U 620 U 620 U cis-1,3-Dichloropropene 660 U 660 U 660 U 620 U 620 U Trichloroethene 660 U 109 % 102 % 620 U 105 % Dibromochloromethane 660 U 660 U 660 U 620 U 620 U	1,2-Dichloroethane	660	Ū			660	U		_	620	U	
1,1,1-Trichloroethane 660 U 660 U 660 U 620 U 620 U Carbon Tetrachloride 660 U 660 U 660 U 660 U 620 U 620 U Bromodichloromethane 660 U 660 U 660 U 660 U 620 U 620 U 1,2-Dichloropropane 660 U 660 U 660 U 620 U 620 U cis-1,3-Dichloropropene 660 U 660 U 660 U 620 U 620 U Trichloroethene 660 U 109 % 102 % 620 U 105 % Dibromochloromethane 660 U 660 U 660 U 620 U 620 U	2-Butanone	1300	Ü				U		U	1200	U	
Carbon Tetrachloride 660 U 660 U 660 U 660 U 620 U	1,1,1-Trichloroethane		U			660	U		U		_	
1,2-Dichloropropane 660 U 660 U 660 U 620 U 620 U cis-1,3-Dichloropropene 660 U 660 U 660 U 660 U 620 U 620 U Trichloroethene 660 U 109 % 102 % 620 U 105 % Dibromochloromethane 660 U 660 U 660 U 660 U 620 U 620 U	Carbon Tetrachloride	660	U	660	U		U	620	U	620	U	
cis-1,3-Dichloropropene 660 U 660 U 660 U 620 U 620 U Trichloroethene 660 U 109 % 102 % 620 U 105 % Dibromochloromethane 660 U 660 U 660 U 660 U 620 U 620 U	Bromodichloromethane		U			660	U		U		U	
cis-1,3-Dichloropropene 660 U 660 U 660 U 620 U 620 U Trichloroethene 660 U 109 % 102 % 620 U 105 % Dibromochloromethane 660 U 660 U 660 U 660 U 620 U 620 U	1,2-Dichloropropane		U	660	U	660	U	620	U	620	U	
Trichloroethene 660 U 109 % 102 % 620 U 105 % Dibromochloromethane 660 U 660 U 660 U 620 U 620 U	cis-1,3-Dichloropropene	660	Ü	660	U	660	U	620	U	620	U	
Dibromochloromethane 660 U 660 U 660 U 620 U 620 U	Trichloroethene	660	U	109	8	102	8	620	U	105	%	
1,1,2-Trichloroethane 660 U 660 U 660 U 620 U 620 U	Dibromochloromethane	660	Ü	660	U	660	U	620	U	620	U	
	1,1,2-Trichloroethane	660	U	660	U		U	620	U	620	U	
Benzene 660 U 88 % 83 % 620 U 85 %	Benzene	660	U	88	%	83	૪	620	U	85	*	
Trans-1,3-Dichloropropene 660 U 660 U 660 U 620 U 620 U	Trans-1,3-Dichloropropene	660	U	660	U	660	U	620	U	620	Ŭ	
Bromoform 660 U 660 U 620 U 620 U	Bromoform	660	Ū	. 660	U	660	U	620	U	620	U	
4-Methyl-2-pentanone 1300 U 1300 U 1300 U 1200 U 1200 U	4-Methyl-2-pentanone	1300	U	1300	U	1300	U	1200	U	1200	U	
2-Hexanone 1300 U 1300 U 1200 U 1200 U	2-Hexanone	1300	U	1300	U	1300	U	1200	U	1200	U	
Tetrachloroethene 660 U 660 U 660 U 620 U 620 U	Tetrachloroethene	660	U	660	Ū	660	U	620	U	620	U	
1,1,2,2-Tetrachloroethane 660 U 660 U 620 U 620 U	1,1,2,2-Tetrachloroethane	660	U	660	Ų	660	U	620	U	620	U	
Toluene 250 J 83 % 78 % 620 U 81 %			J	83	ફ	78	8	620	U	81	*	

^{*=} Outside of EPA CLP QC limits.

RFW Batch Number: 0305L5	37 Clie	ent: TNUHANFORD	F03-006 H2250	Work Orde	r: 11343606001	Page: 1b	_
	Cust ID:	B17122	B17122	B17122	VBLKWZ	VBLKWZ BS	<u> </u>
	RFW#: Level:	001 MED	001 MS MED	001 MSD MED	03LVH126-MB1 MED	03LVH126-MB1 MED	
Chlorobenzene		660 U	93 %	86 %	620 U	89 %	
Ethylbenzene		660 U	660 U	660 U	620 U	620 U	
Styrene		660 U	660 U	660 U	620 U	620 U	
Xylene (total)		660 U	660 U	660 U	620 U	620 U	
N-butylbenzene		660 U	660 U	660 U	620 U	620 U	

^{*=} Outside of EPA CLP QC limits.

1E

VOLATILE ORGANICS ANALYSIS SHEET TENTATIVELY IDENTIFIED COMPOUNDS

ΕP	Α	S.	AΜ	PI	Æ	N	Э.
----	---	----	----	----	---	---	----

	<u> </u>	
B17122		

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: ____

SAS No.: _____ SDG No.: ____

Matrix: (soil/water) SOIL

Lab Sample ID: 0305L537-001

Sample wt/vol: $\underline{4.40}$ (g/mL) \underline{G} Lab File ID: $\underline{h060920}$

Date Received: 06/04/03

Level: (low/med) MED

% Moisture: not dec. ___15

Date Analyzed: 06/10/03

Column: (pack/cap) CAP

Dilution Factor: 1.82

CONCENTRATION UNITS:

(ug/L or ug/Kg) <u>ug/Kg</u> Number TICs found: 10

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
		======		=====
1.	SILOXANE	18.234	700	J
2.	UNKNOWN	20.061	30000] J
3.	ALKANE	22.560	20000	J
4.	ALKANE	24.722	100000] J
5.	UNKNOWN	25.542	2000	J
6.	ALKANE	25.937	100000	J
7.	ALKANE	26.322	200000	J
8.	ALKANE	26.678	100000	J
9.	ALKANE	27.201	50000	J
10.	ALKANE	28.722	3000	J
		<u> </u>		

1E

VOLATILE ORGANICS ANALYSIS SHEET

EPA SAMPLE NO	١.
---------------	----

TENTATIVELY IDENTIFIED COMPOUN	NDS VBLKWZ
Lab Name: <u>Lionville Labs, Inc.</u> Contract: <u>11</u>	<u>'</u>
Lab Code: <u>Lionvi</u> Case No.:	SAS No.: SDG No.:
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: <u>03LVH126-MB1</u>
Sample wt/vol: 4.00 (g/mL) G	Lab File ID: h060917
Level: (low/med) <u>MED</u>	Date Received: <u>06/09/03</u>
% Moisture: not dec0	Date Analyzed: 06/09/03
Column: (pack/cap) <u>CAP</u>	Dilution Factor: 2.00
	ONCENTRATION UNITS:

CAS NUMBER	COMPOUND NAME	 RT	EST. CONC.	 Ω
=======================================	=======================================	======	=========	====
1.				
		<u> </u>		li

onville Labor	atory U	se Only	Custo	ody Ti	ran	sfe	er F	Rec	ord/L	ab '	Wo	rk	Re	qu	les	T Pa	age_	<u> </u>	1	•	T		V		Ç
0305	<u> 15</u>	37		FIELD P	ERS	ONNE	L: CC	OMPLE	TE ONL	Y SHAD	ED A	AREA - F	S		G	工	3	В		C	D.		ONVILLE LA	BORATO	RYING
Client TN	u-H	anford	FO:	3-006				Refrige	rator #		I							2				7			
Est. Final Pro	i. Samp	iina Date _						#/Type	Container	Liquid		100					·			<u> </u>					-
Project #	للـــــــــــــــــــــــــــــــــــــ	1343-6	06-001-	9919-0	70		}			Solid	المم				1109	مما	100	loa		109	Jag	lag		lag	 + -
Project Conta	ct/Phon	e#	×- -				- -	Volume	1	Liquid Solid		120			1 60	60	(-5)			60	60	60		60	1
roject Coma Lonville Labo	oratory I	Project Mar	nager <u>WNV</u>	ette g	<u>, W, </u>	Ar	-	Preserv	ratives	-	10					-	-				-			-	FI
oc Spec			- •		1	===	==-∤			· L			ANIC		Sis	+	9		RG	7	+ \$. /	-5	3 3	Z
Date Rec'd	3.31.0	3/6H	.0 ^{[3} Date Due	7- 4 6-1	, 03 0-0	-3		REQUE		-	\$ \$	188	Pest/	i de	Aktinais	如		Metal	8	¥ 5		202	F.C. P.	200	\$3
AATRIX						Ma	trix C							 				1	ory Us	e Only	<u>y</u>	, 	G		
CODES: 5 - Soil 6E - Sediment 60 - Solid	Lab 1D		Client ID/Desc	ription		Cho	MSD	Matrix	Date Collected	Time Collected	日 大で 30	X 2230			0 6 6 7 7 8 9	H 9090	OHBEX	McTO		ICRE	TOGGR	エんぴんと	INDRUB	TN3NT 70666	7. C.R.6
SL - Słudge V - Water	ωi	RIT	122			X	×	5	5.27.03	1110	X	 -	Whe	kb.)) 	9 / /o	5	X		×	X	X	X		
D - Oii A - Air DS - Drum	002	BIT				†		_1	5290	l			rci			ン									
Solids DL - Drum	CO3	B17)	5.29.03			X	1/12	(m)	X	Ida	Curc	V						X	X
Liquids - EP/TCLP	}			·									<u> </u>									<u> </u>			<u> </u>
Leachate WI - Wipe		· 				<u> </u>					<u> </u>	<u> </u>		ļ				<u></u>		ļ	ļ	<u> </u>			ļ
(- Other F - Fish		· ·				 			 -		 	<u> </u>	 -	_	<u> </u>			}			 	 - -	 		
·	<u> </u>								 	 -	┼	┼	-					├-		┼-	-	-			┼
		<u> </u>				╁─╌			 		-	-	╂					-	-	├-	-	 			╂
	 	 				┼─	-		 	 	┼	┼─	+	 	├-	 	 	├─	├─	├-	 -	├─	 		┼
Special instruct		SAF	# F 03.	-006		٠	DATE/	REVISIO	NS:	1	411		1	<u> </u>		!	<u>. </u>	╁┌═	<u> </u>	Lionvi	lle Lab	oratory	Use O	nlv	
MLT () :	RCRA	QC -(d	, Bi, B, Cu,	-001)≝ -001)≝	A Fife's				1. Per C 2 3		HUU	mla	- 1	Gertain	1 13	s - 0	143	-		ed <u>V</u> livered		1) P: 2)	mper Res Presen ackage Unbrok ackage	en on	r N Outer
znoega ⊙ :-	ic-ci	, F, NO ₃ , N	10z, p04,50u	, 1NH3N.	lph,:	icnio			 4 5 6 									- 3 C 4) Recei condition) Samp		Good or N	3) 4)	Presen	t on Sa	ample or N
Relinquishe by	d	Received by	Date	Time		elinqui by	ished		Received by O	RIGIN	PAIL	TI	lme		repand	abels a	nd			Preser (Y)	or Ni		OC/Red pon Sag		iec't
200Ex	_ \{	~ W W	M 5313						_	MEI		1		CO	C Reco	rd? Y	or A) +	lolding	Tiyones (Y)	or N	C T	ooler emp	_	
JONE X		730DM	th 640	3 10925	<u></u>					l		_		L	#	BBA	3.5	5074	15	38	.			91/	

														_
FH-Central Plateau	ı Project	CH	LAIN OF CUST	ODY/S	AMPLI	E ANALY	SIS	REQUEST		F03	-006-107	Page 1	of 1	47
Collector Johansen/Pope/Pfister			ny Contact Iulstrom	Telepho 373-3				Project Coordi TRENT, SJ	nator	Price Code	8N	Data Tur		
Project Designation 200-PW-2/200-PW-4 OU - Boo	rehole Soil Sampling		ing Location A-10 (C3247) 62.5-65 fl	L				SAF No. F03-006		Air Quality		45 1	Days	
ice Chest No.	01-030	Field I	ogbook No. F-N-3361		COA 117504ES	\$10	_	Method of Ship Federal Expre						
Shipped To TWO 5-77-10	DES PLECE	Offsite	Property No.	SR	1071	92_		Bill of Lading	Air Bili	No. N	A- '	· • • • • • • • • • • • • • • • • • • •		
POSSIBLE SAMPLE HAZAF	DS/REMARKS MAL	33: 817134	5-37 Preservation	Cool 4C	Cool 4C	None	Coal 4	IC Cool 4C	Coal 4	C Cool 4C	None	None	None	1
Y/QQ Q Q CQ CQ Special Handling and/or St	UTILTO: BI	(Edrid:	Type of Container	å G	aG	#G	aG		aG		aG	aG	25]
N/A		İ	No. of Container(s)	60mL	1 / 125mil	60mL	60ml	l 125ml	60mi	l 60mL	60mL	60mi. X	60ml.	-
<u> </u>			Volume	See item (1) is		in See item (3) in	Chromi		NO2/NO		- Set item (5) i	\$4-jeck (6) in	Tritium - H3	\dashv
	SAMPLE ANALY	SIS		Special lastructions. A old VOA 8260F	Special Instructions	Special lestructions.	Hex - 7	Special lastructions.	353.	413.1	Special Instructions	H (Africa)		
Sample No.	Matrix *	Sample Date	Sample Time			46						ا المام المام ا		
B17116 FF 5.2 8-23	SOIL	5-27-0 2	3 1030	X	1/×	X	×	- X	<u> </u>	- X,	/	nn 527-	ļ]
617123	joii	5 -27-0		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	 / ×	×		× / ×	×	X X X	\ -	MTSO		4
813 811193 €18	5611	<u>5-27-03</u>	3 1110	X	 	×		XXX		^ 		17.0		4
					1									
Relinquished By/Removed From Date/Time Date/Ti								SP-Sediment SO-Solid Si-Sindge W = Water O=Oil A=Ab DS-Deves Solid DI-Deves Solid T*Tiane WI-Wige L=Liquid V=Vegetation X=Date	7					
FINAL SAMPLE Disposal M DISPOSITION	ethod	<u>, , , , , , , , , , , , , , , , , , , </u>				Dispo	osed By			£*γ	2	Date/Time		

FH-Central Plate	au Project		CHA	AIN OF CUST	ODY/S	AMPLE	ANAL	YSIS	REQUEST		F03	-006-133	Page 1	of 1
Collector Johansen/Pope/Pfister		C		y Contact	Telepho 373-39	ne No.			Project Coordi TRENT, SJ		Price Code	8N	Data Tur	naround
Project Designation 200-PW-2/200-PW-4 OU - E	Sorehole Soil Sampling	S	ampling 216-B-	g Location -12 (C3246); (0.5')					SAF No. F03-006		Air Quality		45 I	Days
Ice Chest No. ETC	-02.407	F	ield Log HNF-N	gbook No. N-3361		COA 117504ES	10		Method of Ship Federal Expre					
Shipped To EBERLINE SERVICES (Fo	RA PE	0	ssite P	roperty No.	030	278	, 		Bill of Lading/	Air Bill I	No. <u>S</u>	re c	OSPC	
Possible Sample HAZ	RDS/REMARKS Redioa-time			Preservation	Cool 4C	Cool 4C	!							
Potentiala Redioative Tic To B17118				Type of Container	aG	aG								
Special Handling and/or Storage				No. of Container(s)	1	1								
	00175			Volume	60mL	60mL								
	SAMPLE ANAI	LYSIS		·	Pesticides - 8081	Chloro- Herbicides - EPA\$151								
									TILD:					
Sample No.	Matrix *	Sample I		Sample Time										
B171B7	SOIL	5-29	-03	1115	X	X_			מודוכן			 		
	 	 				 						 		
	 				 	 						1		
CHAIN OF POSSESSI			/Print N				IAL INSTE	UCTIO	ONS	£ \$0.0 - C	la for Carband		777	Matrix *
TIPE TO THE PERSON OF THE PERS	MUD 5790	Received B	sy/Stored PS (2	in FRC D	te/Time 1				t both kerosène and			n WTPH-D anz	ulvsis 75	334 244003 50-5010
Relinquished By/Removed From	Date/Time 1 5	Received B	37/310/60	In Da	te/Time :	13								SI-Sludge W = Water
Relinquished By/Removed From	C Detection	Received F			te/Time	000								O-Oil A-Air
113 3728	1000		tees	O. J. Fahlbe	76.3									DS=Drum Solids DL=Drum Liquids T=Tissue
Relinquished By/Removed From	Elate/Time 1000	Received E	27,200	Ex	ate/Time									WI=Wipe L=Liquid
Relinquished By/Removed From	Doct Time	Received			ate/Time 03/09	35								V=Vegetation X=Other
Relinquished By/Removed From	Date/Time	Received I			ate/Time									
LABORATORY Received SECTION	Ву				τ	it ic	· <u>····</u>					1	Date/Time	!
FINAL SAMPLE Disposal DISPOSITION	Method						Disp	sed By					Date/Time	·

FH-Central Plateau Project	СН	IAIN OF CUST	ODY/S	AMP	LE ANALY	YSIS	REQUES	ST		F03-006-134	Page 1	ol T
Collector Johansen/Pope/Pfister	Compa	ny Contact Julstrom	Telephon 373-39	e No.			Project Coor TRENT, SJ		Price C	ode 8N	Data Tur	
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		ng Location B-12 (C3246); (14.5'-17')				SAF No. F03-006		Air Qu	nality []	45 1	Days
ce Chest No. ERC 0 2-402		ogbook Na. -N-3361		CQA 11750)4ES10		Method of Sh Federal Exp				<u>.</u>	
Shipped To 1705-29-03 RECCO	Offsite	Property No.	30	_ 2	78		Bill of Ladin	g/Air Bil	No.	SEE	FSPC	·
POSSIBLE SAMPLE HAZARDS/REMARKS Potentioly Ration-tive		Preservation	Cool 4C	Cool	4C Cool 4C	Non	e None	No				
Tieto BI7IN9	f	Type of Container	aG	aC	G aG	aG	aG	13/aC				
Special Handling and/or Storage		No. of Container(s)	1	1		1	10					
COO! ! -		Volume	60mL	1251	mL 60mL	60m	15%	60a				
			See item (1) in Special Instructions.	See item Spec Instruc	ial 353.2; Oli &	See item Speci Instruct	(3) in See item (4) al Special iongs (Visuruction	in Tritium s.	-нэ			
SAMPLE ANALYSIS				,	Chromium Hex - 7196	}	<i>Y</i>					
			power property	i Santania,						Tiet): 	, a
	Sample Date	Sample Time	V			/				BITIN	\mathcal{A}	
	<i></i>	- Cau										
	 		 									
			 	-				+-	_		 -	
CHAIN OF POSSESSION Belinquished By/Removed France A 516 F	Sign/Print		ate/Time i		SPECIAL INSTR	to achie	us a detection liv	م م30,0 p	Cilg for Cor	Olivia de	-24.03	Matrix *
11ka 1015en 100200012-5-29-03	RECO	Rfine Di	19-63						-	nds from WTPH-D ana	-	S=Soil SE=Soilment SO=Solid
Relinquished By/Removed From Date/Time 1517 R	eceived By/Stor	3728 5.2	4.03		(1) Alconols, Gryco (2) Sensi-VOA - 82 TPH-Diesel Range -	70A (TC	L); Semi-VOA -	8270A (A	ld-On) (2-Bi	ithylene glycol, Methan utoxyethanol, Tributyl j	oi} phosphate};	SI-Studge W = Water O-Oil
Relinquished By/Removed From Date/Time 1000 P	eceived By/Stor	ed In Da	ate/Time		(2) Gamma Spectro Gamma Spec - Add-	scopy (Cos	Sesium-137, Colo ium-134, Radium	dt 60, Euro	pi um-152, C	uropium-134, Europium 126): Total Granium, r		
Relinquished By/Ramoved From FRC Date/Time 1000 [R. F. L. 6-323]	eceived By/Sur		ner i ime		241; Isotopic Pluten (4) Technetium-99; 129; Nickel 63; Nap	Strootiv	n 80,00 Total	Sr, leotopia	Thorium (T	horium-232}, Carbon-	14; todino – (T-THENE WI-Wipe L-Liquid
Relinquished By/Removed From Pate/Time	eccived By/Sign	ed in Co-40	ate/Time		1254					•		V=Vegetation X=Other
Relinquished By/Removed From Date/Time	eceived By/8to	ed in D	ate/Time									
LABORATORY Received By SECTION			T	itle					 	1	Date/Time	·• ·- · · · · · · · · · · · · · · · · ·
FINAL SAMPLE Disposal Method DISPOSITION					Disp	osed By		·			Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

Sorton Handow

lase Order/Project:

DATE: 5-31-03

#/SOW#/Release#: FO3-004

pratory SDG #:

3n5L537 TE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION Custody seals on coolers or shipping DNo DNA See Comment # container intact, signed and dated? Outside of coolers or shipping containers are 2. ZVY cs D No DNA D see Comment # free from damage? Airbill # recorded? 3. O No D N/A D see Comment # All expected paperwork received (coc and other client specific: historical data, DINA □ see Comment # alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) Sample containers are intact? ØYes D No D N/A D see Comment # Custody seals on sample containers intact, DNo. DNA D see Comment # signed and dated? 7. All samples on coc received? 🕅 Yes D No □ N/A D see Comment # 🗘 Yes D No All sample label information matches coc? D N/A D see Comment # Laboratory QC samples designated on coc? □ No DNA D see Comment # (QC stickers placed on bottles?) 10. Shipment meets LvLl Sample Acceptance D No D N/A Disce Comment # Policy? (identify all bottles not within policy. See reverse side for policy) 11. Where applicable, bar code labels are D Yes □ No N/V D see Comment # affixed to coc? Yes Yes □ No D N/A 12. coc signed and dated? Disee Comment # 13. coc will be faxed or emailed to client? Yes. □ No DINA D sec Comment # 14. Project Manager/Client contacted M N/A □ Yes DNo concerning discrepancies? (name/date) Disce Comment #

Cooler # / temp (°C) and Comments:

ERC 01-030 /03"-

Laboratory Sample Custodian:

Laboratory Project Manager:

Dyman

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

in: TNU Handow

hase Order/Project:

DATE: 6.4.03

#) SOW#/Release #: FO3-006

pratory SDG #:

TE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION Custody seals on coolers or shipping DNo D N/A D see Comment # container intact, signed and dated? Outside of coolers or shipping containers are O No DINA D see Comment # free from damage? Airbill # recorded? 3. ON Q DNA D see Comment i All expected paperwork received (coc and other client specific: historical data, Q,Yes □ № DNA Disec Comment # alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) Sample containers are intact? D No D N/A D see Comment # Custody seals on sample containers intact, D No. DNA See Comment # signed and dated? 7. All samples on coc received? D No D N/A See Comment # D No All sample label information matches coc? D N/A Dace Comment # Laboratory QC samples designated on coc? O Yes D No AVAGE! D see Comment # (QC stickers placed on bonles?) 10. Shipment meets LvLI Sample Acceptance D No DNA D see Comment # Policy? (identify all bottles not within policy. See reverse side for policy) 11. Where applicable, bar code labels are D Yes D No N/K D see Comment # affixed to coc? LTY es 12. coc signed and dated? D No DNA See Comment # 13. coc will be faxed or emailed to client? M Yes. D No E) N/A ☐ see Comment # 14. Project Manager/Client contacted D Yes IN N/A D No concerning discrepancies? (name/date) ☐ sec Comment #

Cooler # / temp (°C) and Comments:

Laboratory Sample Custodian:

Laboratory Project Manager:

Mingles

Lionville Laboratory, Inc. BNA ANALYTICAL DATA PACKAGE FOR TNUHANFORD F03-006 H2250

DATE RECEIVED: 06/04/03 LVL LOT # :0305L537

CLIENT ID	LVL #		MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
			-				
B17122	001		s	03LE0693	05/27/03	06/06/03	06/27/03
B17122	001	01	s	03LE0693	05/27/03	06/06/03	07/01/03
B171B8	003		S	03LE0693	05/29/03	06/06/03	06/27/03
LAB QC:							
SBLKVC	MB1		S	03LE0693	N/A	06/06/03	06/07/03
SBLKVC	MB1 BS		S	03LE0693	N/A	06/06/03	06/07/03
SBLKVC	MB1 BS	D	S	03LE0693	N/A	06/06/03	06/07/03





Client: TNU-HANFORD F03-006

LVL#: 0305L537

SDG/SAF # H2250/F03-006

W.O. #: 11343-606-001-9999-00

Date Received: 05-31-2003 & 06-04-2003

SEMIVOLATILE

Two (2) soil samples were collected on 05-27,29-2003.

The samples and their associated QC samples were extracted according to Lionville Laboratory OPs based on method 3550 on 06-06-2003 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for client specified Semivolatile target compounds on 06-07,27-2003 and 07-01-2003.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

- 1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- 2. Samples were extracted and analyzed within required holding time.
- 3. Non-target compounds were detected in the samples.
- 4. Sample B17122 required a 2000-fold dilution due to high levels of target compounds.
- 5. All obtainable surrogate recoveries were within EPA QC limits.
- 6. All blank spike recoveries were within EPA QC limits.
- 7. The method blank contained the target compound Tributylphosphate at a level less than the CRQL.
- 8. Internal standard area and retention time criteria were met.
- 9. Manual integrations are performed according to OP 21-06A-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").
- 10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

J. Michael Taylor

President

Lionville Laboratory Incorporated

som\gorup\data\bna\tnu-hanford-0305-537.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data.

Therefore, this report should only be reproduced in its entirety of 1 7 pages.

37-11-03

DATA QUALIFIERS

- U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I = Interference.
- NO = Result qualitatively confirmed but not able to quantify.
- A = Indicates that a TIC is a suspected aldol-condensation product.
- N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TlCs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TlC, such as chlorinated hydrocarbon, the N code is not used.
- This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y = Additional qualifiers used as required are explained in the case narrative.



3

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Suffix added to sample number to indicate that results are from a diluted analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP, Z = Indicates Spiked Compound.



TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quan modifications:

- MP Missed Peak: manually added peak not found by automatic quan program.
- PA Peak Assignment: quan report was changed to reflect correct peak assignment.
- RI Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.
- SP Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.
- PI Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.



5

Lionville Laboratory, Inc.

RFW Batch Num	ber: 0305L537	Client:	IMOU	INFORD F03	-000	HZZJU I	MOT	v Oraci. II.	1 3	606 001		Page: la	
	Cust ID:	B17122		B17122		B171B8		SBLKVC		SBLKVC BS		SBLKVC BSD)
Sample	RFW#:	001		001 DL		003		03LE0693-ME	31	03LE0693-M	в1	03LE0693-M	B1
Information	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	20)	200	0	1.0	0	1.00)	1.0		1.0	
	Units:	UG/K	3	UG/K	G	UG/K	G	UG/KC	3	UG/K	:G	UG/K	G
	Nitrobenzene-d5	0 D	ક	0 D	٧ *	- 62	8	70	४	49	૪	77	왐
Surrogate	2-Fluorobiphenyl	0 D	8	0 D	8	63	ક	65	ક	47	*	74	ş
Recovery	Terphenyl-d14	0 D	ક	0 D	ક	81	¥	81	ક	65	ક	93	ક
	Phenol-d5	0 D	8	0 D	૪	60	왐	70	૪	48	ક	75	ક્ષ
	2-Fluorophenol	0 D	왐	0 D	%	59	૪	63	8	46	용	69	8
	2.4.6-Tribromophenol	0 D	४	0 D		66	왐	61	ક	52	왐	77	ક
========			=fl=:		=fl=								
Phenol		78000	U	780000	U		U		Ū	48	용	74	8
bis(2-Chloroe	thyl)ether	78000	U	780000	U	-	U	330		330	U	330	U
2-Chloropheno	ol	78000	Ũ	780000	Ū		U	330		47	ક્ષ	69	ą
1,3-Dichlorob	enzene	78000	U	780000	Ū		U	330		330	Ū	330	Ţ
1,4-Dichlorob	enzene	78000	U	780000	U	350	U	330		46	ક	68	ŧ
1,2-Dichlorob	enzene		U	780000	U	350	U	330		330	U	330	τ
2-Methylpheno	01	78000	U	780000	Ū	350	U	330		330	Ū	330	τ
2,2'-oxybis(1	Chloropropane)	78000	U	780000	U	350	U		U	330	U	330	Ų
	Methylphenol		U	780000	U	350	U		Ū	330	U	330	Ü
N-Nitroso-di-	n-propylamine	78000	U	780000	U		U	330		49	ક	74	ę
Hexachloroeth	nane	78000	Ü	780000	U		U	330	Ü	330	U	330	ľ
Nitrobenzene_		78000	Ū	780000	U	350	Ũ		U	330	Ū	330	U
Isophorone	•	78000	U	780000	Ū	350	U	330	Ū	330	U	330	τ
2-Nitrophenol	<u> </u>	78000	บ	780000	U		U	330	U	330	U	330	τ
2,4-Dimethylp	ohenol	78000	U	780000	Ū		U	330	Ū	330	U	330	Ü
bis(2-Chloroe	ethoxy) methane	78000	U	780000	U	= '	U	330	U	330	U	330	Ţ
2,4-Dichlorop	ohenol		U	780000	U		U	330	U	330	U	330	τ
	orobenzene	78000	U	780000	Ū	350	U	330	Ū	46	ક	71	2
Naphthalene_		78000	U	780000	U	350	Ų	330		330	U	330	Į
4-Chloroanil:	ine	78000		780000	U	350	Ū		U	330	U	330	
	adiene	78000	U	780000	U	350	U	330	U	330	U	330	Ţ
	ethylphenol	78000	U	780000	U		U	330	U	49	ક	71	ş
2-Methylnaphi	thalene	78000	U	780000	U	350	U		Ū	330	U	330	Ţ
	clopentadiene	78000	U	780000	U	350	U				U	330	Į
2,4,6-Trichle		78000	U	780000	U	350		330			U	330	
2,4,5-Trichle		200000	U	2000000	U	880	U	840	U	840	Ū	840	τ

RFW Batch Number: 0305L537	Client: 7	NUHA	NFORD F03-	006	H22 <u>50</u>	Wor	k Order: 113	343	606 001		Page: 1b	
Cust ID:	B17122		B17122		B171B8		SBLKVC		SBLKVC BS		SBLKVC BSD	7
RFW#:	001		001 DL		003		03LE0693-MI	31	03LE0693-M	в1	03LE0693-MB	1
				-	250		330	U	330	Ū	330	Ū
2-Chloronaphthalene		Ü	780000		350	U U		U	840	Ū		U
2-Nitroaniline		U	2000000 1		880	-		U	330	Ū		บ
Dimethylphthalate		U	780000		350	U		-		Ω		Ü
Acenaphthylene		U	780000		350	Ü	330	Ü	330	-		Ü
2,6-Dinitrotoluene	78000	Ü	780000		350	U	330	U	330	U		_
3-Nitroaniline	200000	U	2000000		880	U	840	U	840	U		U •.
Acenaphthene	78000	U	780000		350	U		U	49	용 		8
2,4-Dinitrophenol	200000	U	2000000		880	Ū	840	U	840	U		U
4-Nitrophenol	200000	U	2000000		880	U	840	U	51	૪		ક
Dibenzofuran	78000	Ü	780000		350	U	330	U	330	U		Ü
2,4-Dinitrotoluene	78000	Ū	780000		350	U	330	Ū	58	ક		8
Diethylphthalate	78000	U	780000	U	350	U	330	U	330	U		U
4-Chlorophenyl-phenylether		U		U	350	U	330	U	330	U		U
Fluorene	78000	U	780000	U	350	Ü	330	Ü	330	Ū		U
4-Nitroaniline	200000	U	2000000	Ű	880	U	840	Ū	840	U		U
4,6-Dinitro-2-methylphenol	200000	U	2000000	U	880	Ü	840	U	840	U	*	U
N-Nitrosodiphenylamine (1)	78000	U	780000	U	350	Ū	330	U	330	U		Ū
4-Bromophenyl-phenylether		U	780000	U	350	U	330	U	330	U	=	U
Hexachlorobenzene		Ū	780000	Ū	350	Ū	330	U	330	U		U
Pentachlorophenol	200000	Ų	2000000	Ū	880	U	840	U	52	૪	-	૪
Phenanthrene		U	780000	U	350	U	330	U	330	U	=	U
Anthracene		Ų	780000	U	350	U	330	U	330	Ü	330	Ū
Carbazole	78000	U	780000	U	350	U	330	U	330	Ü		U
Di-n-butylphthalate	78000	U	780000	U	77	J	330	U	330	U	330	U
Fluoranthene		U	780000	Ü	350	Ū	330	U	330	U	330	U
Pyrene		U	780000	U	350	Ū	330	U	61	8	87	૪
Butylbenzylphthalate	78000	U	780000	U	350	Ü	330	U	330	U	330	U
3,3'-Dichlorobenzidine		U	780000	U	350	U	330	U	330	U	330	U
Benzo(a)anthracene		U	780000	U	350	U	330	U	330	U	330	U
Chrysene	78000	U	780000	U	350	U	330	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	78000	U	780000	บ	18	J	330	U	330	U	26	J
Di-n-octyl phthalate	78000	U	780000	Ų	350	Ü	330	U	330	U	330	U
Di-n-octyl phthalate	78000	Ū	780000		350	Ū	330	U	330	U	330	U
Benzo(k) fluoranthene	78000	Ū		U	350	U	330	U	330	U	330	U
		Ū		U		U		U	330	U	330	U
Benzo(a)pyrene Indeno(1,2,3-cd)pyrene	-	Ū		Ū	350	U		U	330	U		U
Dihenz (a h) anthracene	_	Ū		Ū	350			U	330	U		U
Dibenz (a, h) anthracene	-	Ü		Ū	350			Ū	330			Ū
Benzo(g,h,i)perylene	-	Ū		Ū	350			Ū				Ū
2-Butoxyethanol	78000	Ü	780000		350			Ū				Ū
<pre>Benzyl alcohol *= Outside of EPA CLP QC limits.</pre>	_ /8000	J	,00000	-	220	J	250	_	550	_		-
"= Outside of Era our QC finites.												

RFW Batch Number: 0305L537	Client: TNUH	ANFORD F03-006	H2250 Wo	ork Order: 11343	606001	Page: 1c
Cust ID:	B17122	B17122	B171B8	SBLKVC	SBLKVC BS	SBLKVC BSD
RFW#:	001	001 DL	003	03LE0693-MB1	03LE0693-MB1	03LE0693-MB1
Tributylphosphate	2000000 E	5500000 BD	350 U	J 18 J	330 U	23 JB
(1) - Cannot be separated from Dip	henylamine. *=	Outside of E	PA CLP QC li	.mits.		

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B17122

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F03-006 H2250

Matrix: (soil/water) SOIL

Lab Sample ID: <u>0305L537-001</u>

Sample wt/vol: $\underline{30.0}$ (g/mL) \underline{G}

Lab File ID: <u>D062717</u>

Level: (low/med) LOW

Date Received: <u>06/04/03</u>

% Moisture: ___15 decanted: (Y/N)__ Date Extracted: 06/06/03

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 06/27/03

Injection Volume: 2.0(uL)

Dilution Factor: 200

GPC Cleanup: (Y/N) N pH: ___

CONCENTRATION UNITS:

Number TICs found: 10

(ug/L or ug/Kg) <u>UG/KG</u>

		I	1 1		Γ΄	ŧ
	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q Q	1
					_=====	ļ
	1.	ALKANE	9.802	600000	J	ļ
	2.	ALKANE	10.911	200000	J	۱
	3.	ALKANE	11.382	500000	J	ĺ
	4.	ALKANE	11.714	200000	J	ĺ
	5.	ALKANE	11.792	200000	J	Ĺ
	6.	ALKANE	12.281	300000	J	ĺ
	7.	ALKANE	12.412	400000	J	Ì
	8.	ALKANE	12.849	600000	J	ĺ
1	9.	ALKANE	13.198	200000	J	ĺ
į	10.	ALKANE	14.202	500000	J	İ
				İ	İ	İ

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	SAMPLE	NO.

1		
B171B8		

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F03-006 H2250

Matrix: (soil/water) <u>SOIL</u>

Lab Sample ID: <u>0305L537-003</u>

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D062715

Level: (low/med) <u>LOW</u>

Date Received: 06/04/03

% Moisture: ____5 decanted: (Y/N)___ Date Extracted: 06/06/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 06/27/03

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) <u>N</u> pH: ____

CONCENTRATION UNITS:

Number TICs found: __7

(ug/L or ug/Kg) <u>UG/KG</u>

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.438	400	JВ
2.	ALDOL CONDENSATE	4.822	400	JAB
3.	ALDOL CONDENSATE	5.416	30000	JAB
4. 79-34-5	1,1,2,2-TETRACHLOROETHANE	6.682	90	JN
5.	PHTHALATE	19.612	300	J
6.	UNKNOWN	21.096	70	J
7.	ALKANE	25.837	100	J
		l	l <u></u> _	l

1 F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

CL:	IENT	SAMPLE	NO.	
1				
lepr.	מזכ			

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F03-006 H2250

Matrix: (soil/water) SOIL Lab Sample ID: 03LE0693-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D060711

Level: (low/med) LOW Date Received: 06/06/03

% Moisture: ____ decanted: (Y/N)__ Date Extracted: 06/06/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 06/07/03

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: ____

Number TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Ω
				====
1.	UNKNOWN	3.184	400	J
2.	ALDOL CONDENSATE	3.540	500	JA
j 3.	ALDOL CONDENSATE	4.183	30000	JA
İ		İ		

Custody Transfer Record/Lab Work Request Page 1 of 1 Lionville Laboratory Use Only FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS 0305L537 F03-006 Refrigerator # Client TNU-Handard Liquid Est. Final Proj. Sampling Date ... #/Type Container Project # 11343-606-001-9999-00 Solid laellae Liquid Project Contact/Phone # ____ Volume Lionville Laboratory Project Manager Ordette and Laboratory Solid 60 ٥٥ **Preservatives** INORG SECTION TO Date Rec'd 5 31 03/64.03 7- 4- 03 ANALYSES REQUESTED Lionville Laboratory Use Only Matrix MATRIX QC CODES: エめいな Date Time Chosen Lab Client ID/Description Matrix な Collected Collected S - Soil (V) SE - Sediment SO - Solid MS MSD SL - Sludge X X (W/nukb) X W - Water B17122 52743 1110 001 O - Oil A - Air B171B7 529031115 DS - Drum Solids B171 B8 5.29.08 1250 DL - Drum Liquids L - EP/TCLP Leachate WI - Wice X - Other F - Fish SAF # F03-006 Lionville Laboratory Use Only Special Instructions: 6-5-03 , Per Client Add miles + amon to -003 Run Matrix QC (do not use -001) The Samples were:

1) Shipped or Tamper Resistant Seal was: 1) Present ercOuter Hand Delivered Package () or N MET O = RCRA + Sb, Be, Bi, B, Cu, Ni Airbill # ____ 2) Unbroken on Outer Package (7) or N INDEGRO - IC-CI, F. NO, NOZ, PO, SOK, INHIN, IPH, ICMO 4. 2) Ambient of Chilled 3) Present on Sample 3) Received in Good (Y) or N Condition Y or N 4) Unbroken on Sample Y or N 4) Samples Properly Preserved COC/Record Present Relinquished Received Relinguished Received Discrepancies Between (Y) or N Date Time Time Upon Sample Rec't by ORIGINAT Samples Labels and (Y) or N 5) Received Within COC Record? Y or Holding Types Cooler mith 12:31:03 11:35 V/ 572 NOTES: Temp. **5.3** °C (Y) or N 64.03 10925 # 8393 5014 5238

(6) YOA BNA HIPUB FROM INJUNO U'VI IVOUN

#7907 9893 73391 10.2°L

FH-Central Plateau	u Project	CI	HAIN OF CUST	ODY/S	AMPLE	ANALY	SIS	REQUEST	r	F03	-006-107	Page 1	of 1 (
Collector Company Contact Johansen/Pope/Pfister LC Hulstrom				Telephor 373-39					nator	Price Code 8N Data To			naround
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling 216-A-10 (C3247) 62.5-65 ft				<u> </u>				SAF No. F03-006	1	Air Quality		45]	Days
Ice Chest No.	01-030		Logbook No. F-N-3361		COA 117504ES	10		Method of Ship Federal Expre					
Shipped To -1005 5-27-0 EBERLINE SERVICES (Form	OB PECCAS	Offsite	Property No.	SR	1071	92_		Bill of Lading	Air Bill N	<u>,</u> ∨	A -		
POSSIBLE SAMPLE HAZAR	RDS/REMARKS 94747	33: BN 134 1	5->7 Preservation	Cool 4C	Coal 4C	None	Cool	4C Cool 4C	Cool 4C	Cool 4C	None	None	None
Special Handling and/or St	UTILTO: BF	(Edna	Type of Container	aG 1	#G	aG	aG 1	aG /	aG 1	aG	aG L	aG 1	3C/ 0/1
N/A			No. of Container(s)	60mL	125mJ	60mL	60m	1	60mL	60mL	60mL	60mL X	60mL
· · · · · · · · · · · · · · · · · · ·	SAMPLE ANALYS	SIS	Volume	See item (1) in Special Instructions. A of the VOA 82 Cos Fi	Special Instructions	See item (3) in Special Instructions.	Chromi Hex - 7		NO2/NO3 353.2	- Oil & Grease - 413,1	See item (5) in Special Instructions	(Special	Tritium - H3
Sample No.	Matrix *	Sample Date	Sample Time			Z			1900 j. 1945 - 1979 1845 - 1985 - 1989				
B17116 F 5.7 9-43	SOIL E	3-27-0 <u>2</u>		X	/×	\sim	$-\times$	<u> </u>	X	 X.	<u> </u>	10 5 <i>9</i> 7-9	2
मानु होता १५ हो । । ।	5011 5 5611 5	3 -27 - 6 3-27 -63		Х	/ X	×		XXX	X	X X		MJS0	
· -			•		V								
Relinquished By/Removed From Date/Time Dat									SE-Sodiment SO-Solid SI-Sladge W = Water O-Oli A-Alr DS-Drum Solida DL-Drum Liquic T-Tissue WI-Wipe L-Liquid V-Vegetation X-Oliger				
LABORATORY Received By SECTION				Ti	itle	of Ile	√n'S	13) + (4) per	Stere	~~~~	Date/Time	
FINAL SAMPLE Disposal Me	ethod					U Dispo	sed By			7) ' 1	Date/Time	

FH-Central Plateau	Project	C	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST								F03-006-133 Page 1		
Collector Johansen/Pope/Pfister	Comp	Company Contact Telephone No. Pro						Project Coordinator TRENT, SJ Price Code 8N			Data Turnaro		
Project Designation 200-PW-2/200-PW-4 OU - Bo	Sampl	Sampling Location 216-B-12 (C3246); (0.5')								Air Quality 45]		Days	
I Ch N-	-02.402	Field I	Logbook No. F-N-3361		COA 117504ES1	0		Method of Shipment Federal Express					
Shipped To EBERI INE SERVICES (Form	P PE		e Property No.	030	278			Bill of Lading/Air Bill No.					
Possible sample Hazar	RDS/REMARKS Pedioactica B17118		Preservation	Cool 4C	Cool 4C								_
Tie To	B17118	>	Type of Container	aG	aG								
Special Handling and/or St	_		No. of Container(s)	1	1								
CO	0140		Volume	60mL	60mL								
	SAMPLE ANALYSI	s	<u> </u>	Pesticides - 8081	Chloro- Herbicides - EPA8151								
								TILD:					
Sample No.	Matrix *	Sample Date											
B171B7	soil 5	1-29-0	3 1115	X	X			137108			-		
		. · · · · · · · · · · · · · · · · · · ·						_				 	
CHAIN OF POSSESSIO		Sign/Pris	nt Names	1		IAL INSTR				<u> </u>			Matrix *
Relinquished By/Removed From	Ma52993	Richard	Richard 5	pate/Time	30	e laboratory is ne laboratory is	to achie to repur	ve a detection limit o both kerosene and	f 50,0 p(liesel Tat	City for Carbon 14. Ige compounds from	n WTPIL D and	dysis. 75-	S-30il 2845digs
RCea & Chi	5.29.05 10	Received By/30	3728 3	5.29	03								W = Water O=Oil A=Air
Relinquished By/Removed From Date/Time 1000 Received By/Stored In Date/Time 1000 Received By/Stored In Date/Time 1000 Received By/Stored In Date/Time 1000													DS=Drum Solids DL=Drum Liquids T=Tissue
Relinquished By/Removed From	PEDate/Time/000	Received By/Ste		Date/Time									Wi=Wipe L=Liquid V=Vegetation
Relinquished by/Removed From	Date/Time	Received By/St		Date/Time -03/09	ia5								X=Other
Relinquished By/Removed From	Date/Time	Received By/Si	ored in I	Date/Time								. •	James 1977
LABORATORY Received By SECTION	, , , , , , , , , , , , , , , , , , ,			•	litle .			·				Date/Time	
FINAL SAMPLE Disposal Me	ethod					Dispo	sed By		•			Date/Time	

FH-Central Plate	eau Project		HAIN OF CUST	ODV/S	AMPLI	E ANALY	VSIS I	REQUEST		FO	3-006-134	Page 1	of 1
Collector Johansen/Pope/Pfister	cau i ivject	Compa	Company Contact Telephone N LC Hulstrom 373-3928						tor 1	Price Code	8N	Data Tur	l l
 			Sampling Location 216-B-12 (C3246); (14.5'-17')					SAF No. Air Quality			45 I	45 Days	
Ice Chest No. ERC 5 2 - 402 Field Logbook No. HNF-N-3361					COA 117504ES	510		Method of Shipme Federal Express	ent				
Shipped To TWO	5-29-03 Recra			 930	-27			Bill of Lading/Ai	r Bill N	D.	SEE	FSPC	
POSSIBLE SAMPLE HAT	ZARDS/REMARKS		Preservation	Cool 4C	Cool 4C	Cool 4C	None	None	None				
Special Handling and/or	B171N9	÷	Type of Container	aG	аG	aG	аG	aG n	aG .				
	ol 4°C		No. of Container(s)	1	l	1	1	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	1				
	, o i '		Volume	60mL	125mL	60mL	60mL	6060	60mL				
	SAMPLE ANALYSIS	8		See item (1) is Special Instructions.	h See item (2) is Special Instructions.	353.2; Oil &	Special	,-1-177	fritium - H	3	Ties	D:	
Sample No.	Matrix *	Sample Date	Sample Time			ر النجاب المساحد المساحدة	ئى قىنانىي					ه <u>د مصدره منسسی ش</u> ه	
B171B8	SOIL	5-29-0	B 1250	<u> X</u>	-X-	X	/			 	10171	<i>γ</i> 9	
										<u> </u>			
											<u> </u>		Matrix *
	Date/Time 1515 I Date/Time 1515 I Date/Time 1515 I Date/Time 1000 I Date/Time 1000 I Date/Time 1000 I Date/Time 1000 I Date/Time 1000 I Date/Time 1000 I Date/Time 1000 I Date/Time I Date/Ti	Received By/Sto Received By/Sto Received By/Sto	red in ER Dr. 7 P. Fahll red in Dr. 7 P. Fahll red in Dr. 7 P. Fahll Red in Dr. 7 P. Fahll Red in Dr. 7 P. Fahll	ate/Time	515 (1) (2) (2) (2) (3) (4) (4) (4) (4) (129	The laboratory is Alcohols, Glyco Semi-VOA - 82 H-Diesel Range - Gamma Spectro	to report its re	nes - 8015 {1-Butano nes - 8015 {1-Butano); Semi-VOA 8270 ; TPH-Gasoline Rang arun-137, Cobah-60; m-134. Radium-226, pic Uranium \$5,00 - Fotal Sr; Lee	sel range ol, Diethyl A (Add-C e - WTP! Europius Radium-2	compounds fi ether, Ethyle on) (2-Butoxy 1-G n-152, Europi 128, Tin-126)	ne glycol, Methan ne glycol, Methan ethanol, Tributyl um-134, Europiur ; Total Uranum; m-232), Carbon	ol) phosphate); n=155); onericione	S-Soil SE-Sodiment SC-Soild SI-Stedge W= Water C-Oil DSyllagm Solids T-reside WI-Wipe L-Hight V-Vogethion X-Other
SECTION						D:	and Pro					Data/Ti	
FINAL SAMPLE Disposa DISPOSITION	al Method					Dispo	sed By					Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

ENT: THU Handow

iase Order/Project:

DATE: 5.31.03

#/SOW#/Release #: F03-004

M2051537

ratory SDG #:

	<u> </u>	, 			•
TE:	ALL ENTRIES MARKED "NO" MUST BE E	k	THE COMM	ENT SECTION	
1.	Custody seals on coolers or shipping container intact, signed and dated?	ў /Үе s	D No	□ N/A	□ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	Yes	□ No	D N/A	☐ see Comment #
3.	Airbill # recorded?	ÎVYes	□ No	D N/A	D see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	₩ Yes	□ No	DNA	🖸 see Comment #
5.	Sample containers are intact?	Yes	D No	□ N/A	D see Comment #
6.	Custody seals on sample containers intact, signed and dated?	Yes	D No	D N/A	See Comment #
7.	All samples on coc received?	Yes	□ No	AWO	□ see Comment #
8.	All sample label information matches coc?	Y Yes	□ No	D N/A	See Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	b Yes	□ N ₀	O N/A	D see Comment #
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	D/Yes	□ No	□ N/A	☐ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	O Yes	O No	AWA	☐ see Comment #
12.	coc signed and dated?	Yes	□ No	D N/A	See Comment #
13.	coc will be faxed or emailed to client?	TYes.	□ No	D N/A	□ see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	□ Yes	□ No	WNA	□ sec Comment #

Cooler # / temp (°C) and Comments:

ERC 01-030/03'5

Laboratory Sample Custodian:

Laboratory Project Manager:

Dymiten

16

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

in TNU Hambora

nase Order/Project:

DATE: 6403

#) sow#/Release #: FO3-006

pratory SDG #:

	ALL ENTRIES MARKED "NO" MUST BE I			IDITORS Frim	N
1.	Custody seals on coolers or shipping container intact, signed and dated?	CXY es	, DNo .	D N/A	D see Comment #
2.	Outside of coolers or shipping containers are free from damage?	Yes	□ No	DNA	D see Comment #
3.	Airbill # recorded?	Q/Yes	□ No	O N/A	□ see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	Yes Yes	O No	DNA	See Comment#
5.	Sample containers are intact?	Fres	D No	O N/A	D see Comment #
5.	Custody seals on sample containers intact, signed and dated?	D) es	DNo.	D N/A	D see Comment #
7.	All samples on cocreceived?	A Yes	□ No	□ N/A	see Comment #
3.	All sample label information matches coc?	S) Yes	D No	D N/A	ace Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	D Yes	□ No	DAVIA	D see Comment #
0.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)) is	□ No	D N/A	D see Comment #
33.	Where applicable, bar code labels are affixed to coc?	D Yes	D No	PINA	D see Comment A
12.	coc signed and dated?	Ties	D №	DNA	See Comment
13.	coc will be faxed or emailed to client?	TYes.	□ No	D N/A	D see Comment
4.	Project Manager/Client contacted concerning discrepancies? (name/date)	⁴ □ Yes	, DNo	ENA	D see Comment

Cooler # / temp (°C) and Comments:

ERC - 02 - 402 | 0.2°

Laboratory Sample Custodian:

Laboratory Project Manager:

hingle

Lionville Laboratory, Inc. PEST/PCB ANALYTICAL DATA PACKAGE FOR TNUHANFORD F03-006 H2250

DATE RECEIVED: 06/04/03 LVL LOT # :0305L537

CLIENT ID	ľVľ	#	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B171B7	002		S	03LE0683	05/29/03	06/05/03	06/27/03
B171B7	002	MS	S	03LE0683	05/29/03	06/05/03	06/27/03
B171B7	002	MSD	S	03LE0683	05/29/03	06/05/03	06/27/03
LAB QC:							
PBLKVM	MB1		S	03LE0683	N/A	06/05/03	06/27/03
PBLKVM	MB1	BS	S	03FE0683	N/A	06/05/03	06/27/03



ger 1403



Analytical Report

W.O. #: 11343-606-001-9999-00

Date Received: 06-04-03

Client: TNU-HANFORD F03-006

SDG/SAF #: H2250/F03-006

PESTICIDE

LVL #: 0305L537

One (1) soil sample was collected on 05-29-03.

The sample and its associated QC samples were extracted on 06-05-03 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 06-27-03. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8081A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

- 1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- 2. All required holding times for analysis have been met.
- 3. The method blank was below the reporting limits for all target compounds.
- 4. Six (6) of ten (10) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
- 5. Five (5) of six (6) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
- 6. All matrix spike recoveries were within acceptance criteria.
- 7. All initial calibrations associated with this data set were within acceptance criteria.
- 8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
- 9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

pef\r:\group\data\pest\tnu hanford\05L-537.pes

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 11 pages.

Lionville Laboratory S	ample Discrepancy Rep	ort (SDR) SDR #: 03GC 131
Initiator: Inve Soutono Date: 612003 Client: TUU	Batch: 6305 2.537 Samples: 55 Method: 8084644CAVW/CLP/	Parameter: 0608H Matrix: So i' Prep Batch: 031€068
Reason for SDR a. COC Discrepancy Tech Profil		Sampler Error on C-O-C
b. General Discrepancy Missing Sample/Extract Co Hold Time Exceeded Ins	ontainer Broken Wron sufficient Sample Prese of Amenable to Analysis	ng Sample Pulled Label ID's Illegible ervation Wrong Received Past Hold
c. Problem (Include all relevant specif		
1	- ·	MS + MSD ore good. Sugle is clean.
2, Known or Probable Causes(s)		
2. Milowil di Fiobobia Caucati,-,		
		•
3, Discussion and Proposed Action	Other Description: Name	4
Re-logEntire BatchFollowing Samples: Re-leachRe-extractRe-digestRevise EDDChange Test Code toPlace On/Take Off Hold (circle) 4. Project Manager Instructionssigns /_Concur with Proposed ActionDisagree with Proposed Action; Solnclude in Case NarrativeClient Contacted:Date/PersonAdd	ature/date:	- 6 3 in 13
Add Cancel	•	
5. Fina) Actionsignature/date:	[analysis] (circle)	xplanation: st for distribution and filing.
Route Distribution of Completed SDR		ribution of Completed SDR
X Initiator X Lab General Manager:—M. Ta X Project Mgr: Stone/Johnson/ X Technical Mgr: Wesson/Dent X QA (file) Data Management: Feldman Sample Prep: Beegle/Kiger	Maylor	Metals: Beegle norganic: Perrone BC/LC: Kiger MS: Rychlak/Layman Log-in: Melnic Admin: Soos Other:



GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

- U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I = Interference.

ABBREVIATIONS

- BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA = Not Applicable.
- DF = Dilution Factor.
- NR = Not Required.
- SP = Indicates Spiked Compound.



GLOSSARY OF PESTICIDE/PCB DATA

- This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- This flag applies to a compound that has been confirmed by GC/MS.

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List Report Date: 06/30/03 10:53

Client: TNUHANFORD F03-006 H2250 Work Order: 11343606001 Page: 1 RFW Batch Number: 0305L537

	Cust ID:	B171B7	B171B7	B171B7	PBLKVM	PBLKVM BS
Sample	RFW#:	002	002 MS	002 MSD	03LE0683-MB1	03LE0683-MB1
Information	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	95 %	110 %	105 %	100 %	130 * %
	Decachlorobiphenyl	125 * %	130 * %		130 * %	
******		======f1==	fl	==== == f]	.=======f1	======fl=
			3.3 U	3.3 U		
Beta-BHC		1.7 U	3.3 U	3.3 U	1.7 U	1.7 U
Delta-BHC		1.7 U	3.3 U	3.3 U		
gamma-BHC (Lindane)	1.7 U	98 %	92 %	1.7 U	140 * %
Heptachlor_		1.7 U	106 %	102 %	1.7 บ	136 * %
Aldrin		1.7 U	100 %	94 %	1.7 U	128 %
Heptachlor	epoxide	1.7 U	3.3 U	3.3 U	1.7 U	1.7 U
	I		3.3 U	3.3 U	1.7 U	1.7 U
			109 %	109 %	3.3 U	148 * %
4,4'-DDE		3.3 U	6.7 U	6.7 U	3.3 U	3.3 U
			122 %	114 %	3.3 U	156 * %
Endosulfan	II	3.3 U	6.7 U	6.7 U	3.3 U	3.3 U
			6.7 U	6.7 U	3.3 U	3.3 U
Endosulfan :	sulfate	3.3 U	6.7 U	6.7 U	3.3 U	3.3 U
			97 %	92 %	3.3 U	144 * %
	r		33 U	33 U	17 U	17 ปี
Endrin keto	ne	3.3 U	6.7 U	6.7 U	3.3 U	3.3 U
Endrin alde	hyde	3.3 U	6.7 U	6.7 U	3.3 U	3.3 U
alpha-Chlore	dane	1.7 U	3.3 U	3.3 U	1.7 U	1.7 U
gamma-Chlore	dane	1.7 U	3.3 U	3.3 U	1.7 ป	1.7 U
Toxaphene		170 U	330 U	330 U	170 U	170 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC



(6/404 BNH LILL 1.A-Custody Transfer Record/Lab Work Request Page 1 of 1 Lionville Laboratory Use Only FIELD PERSONNEL: COMPLETE ONLY SHADED, AREAS 0305 L537 Refrigerator # Client TNU Harrford F03-006 Liquid Est. Final Proj. Sampling Date _ #/Type Container Project # 11343 - 606 - 001 - 9919 - 00 Solid Liquid Project Contact/Phone # ___ Volume Lionville Laboratory Project Manager Ordette Quana Solid 60 Preservatives TAT 3000 10 ORGANIC ANALYSES Date Rec'd 5.31.03/64.03 REQUESTED Lionville Laboratory Use Only Matrix MATRIX QC CODES: 0 Date Chosen Matrix X (C) X Client ID/Description Collected Collected さる S - Soil (v) SE - Sediment SO - Solid MS MSD SL - Sludge X W - Water B17122 5.27.63 1110 0 - 01 A - Air B171B7 529631115 DS - Drum B171 B8 Solids 5.29.03 1250 DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish SAF # F03-006 6-5-03 1 Per Client Add miles + among to -003 Special Instructions: Lionville Laboratory Use Only Run Matrix QC (do not use -001) JA Samples were: Tamner Resistant Seal was: 1) Shipped V or 1) Present arc Outer Hand Delivered _____ Package () r N MLT () = RCRA + Sb, Be, Bi, B, Cu, Ni 2) Unbroken on Outer Package (Y) or N INDERIO - IC-CI, F, NO., NOW, PO., SOK. 2 MH3N, 2PH, ICAMO ______ 4. 2) Ambient of Chilled 3) Present on Sample (Y) or N 3) Received in Good Condition Y or N 4) Unbroken on 4) Samples Sample Y or N Properly Preserved COC/Record Present Relinguished Received Relinquished Received Discrepancies Between Time Time Upon Sample Rec't by ORIGINA" Samples Labels and COTTOSITE 5) Received Within (Y) or N COC Record? Y or A Holding Types Cooler Temp. 10.3 °C MASTR NOTES:

#7907 9893 7339 /0.20

839.3 5074.5238

FH-Central Platea	u Project	CI	IAIN OF CUST	ODY/S	AMPL	E ANAL	YSIS	REQUEST	r	F03	-006-107	Page 1	of 1
Collector Johansen/Pope/Pfister			ny Contact Iulstrom	Telepho 373-3				Project Coordi TRENT, SJ	nator	Price Code	8N		rnaround
roject Designation 200-PW-2/200-PW-4 OU - Bo	orchole Soil Sampling		ing Location A-10 (C3247) 62.5-65 f	t		·		SAF No. F03-006	1	Air Quality	· 🗆	45]	Days
ce Chest No.	01-03	Field L HNF	ogbook No. F-N-3361		COA 117504E	\$10		Method of Ship Federal Expr			·		
Shipped To -MO5-07- EBERLINE SERVICES (For	MENY THAN PLESSA	Offsite	Property No.	SR	1071	92_		Bill of Lading	Air Bill N	۰. V	A-		
POSSIBLE SAMPLE HAZA	RDS/REMARKS PACE	22: BD144	5-37 Preservation	Cool 4C	Cool 4C	None	Cool 4	C Cool 4C	Cool 4C	Cool 4C	None	None	None
1/40 0 04 Cl Special Handling and/or S	al Tieto: Bi	1003)	Type of Container	aG	aG	зG	aG	aG .	aG	a/G	aG .	#G	2
N/A	-		No. of Container(s)	60mL	125m)	1 60mL	1 60mI	1 125ml	l 60mL	60mL	60mL	60ml; 7/	60mL
	SAMPLE ANALYS	SIS	Volume	See item (1) in Special Instructions. Adul Vora 8266 F	Special Instructions	n Soc item (3) in Special Instructions.	Chromin Hex - 7		NO2/NO3 353.2	Oil & Grease - 413.1	See item (5) in Special Instructions	(Special	Tritium - H3
Sample No.	Matrix *	Sample Date	Sample Time						EL C. C. C.	All America		ر فراد در از در از در از در از در از در از در از در از در از در از در از در از در از در از در از در در از در در در در در در در در در در در در در	
317116 PE 512 5 73		5-27-02		X	11×	+ X	-×	- ×	X	+ 💥	/ 7 7	10 5 2 7 -	12
813183 813183		5 -27-6 5-27-63		Х	X	X	1	X	X	X X,		MISO	
								-\					
elinquished By/Removed From Date/Time Date								Matrix * S-Soil SE-Soilment SO-Soild SH-Shidge W = Water O-ON A-Air DS-Drew Liquid T-Times WI-Wige L-Liquid Y-Vagatation X-Soilor X-Soilo					
SECTION					<u> </u>	Disno	Can's used By	(3) + (4) pu	1 Store		Date/Time	.
FINAL SAMPLE Disposal M DISPOSITION	sethod			·						(

FH-Central	Plateau Project	Cl	ODY/S	AMPLI	EANALY	SIS	REQUEST		F03-006-133		Page 1	of 1	
Collector Johansen/Pope/Pfist	er	Compa	nny Contact Hulstrom	Telepho 373-3	ne No.			Project Coordin TRENT, SJ		Price Code	8N	Data Tur	1
Project Designation	4 OU - Borchole Soil Sampling		ing Location -B-12 (C3246); (0.5')					SAF No. F03-006		Air Quality		45 I	Days
Ice Chest No.	PC-02-402	HN	Logbook No. F-N-3361		COA 117504ES	310		Method of Ships Federal Expre					
Shipped To K	ECRA PE CES (Formorly TMA) 203	Offsite	Property No.	030	278	3		Bill of Lading/	Air Bill	No. <u>S</u>	ee c	OSPC	
Potentia	EHAZARDS/REMARKS	. a	Preservation	Cool 4C	Cool 4C								
Tic	- TO B17 IN	18	Type of Container	aG	aG								
Special Handling	CO014 =		No. of Container(s)	1	1								
			Volume	60mL	60mL								
	SAMPLE ANAL	YSIS		Pesticides - \$081	Chloro- Herbicides - EPA8151								
ļ ,								TILD:					
Sample No.	Matrix *	Sample Date	Sample Time										
B171B7	SOIL	<u>5-29-0</u>	3 1115	X	X			137109			-		
CHAIN OF PO	SSESSION	Sign/Prin	t Names	<u> </u>	SPE	CIAL INSTRI	UCTIO	ONS			<u> </u>		Matrix *
Relinguished By/Remover	From Date/Time	Received By/Sto	Rockin 5	29-03 ate/Time	5'15 W			us a detection fimit o r both kerosene and (n WTPH-D an	dysis 75-	S-Solid SO-Solid SI-Shudge
Relinquished By/Remove	d From Date/Time	Received By/Sto	5728 5	ate/Time	000								W = Water O=Oil A=Air DS=Drum Solids
Relinquished By/Remover	From E P = Date / Time / 000 R + 6 W 6-3.00	Received By/Sto	~ 	atc/Time	<u>a 3</u>								DL=Drum Liquids T=Tisme WI=Wipe L=Liquid
Relinquished By/Rentove	Date/Time	Received By/Sto	Thirth 6.4	ate/Time	ia5								V=Vegetation X=Other
Relinquished By/Remove	d From Date/Time	Received By/81c	regit In D	ate/Time									and the second
LABORATORY SECTION	Received By				litle							Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method					Dispos	sed By		·			Date/Time	

FH-Central	Plateau Project	C	HAIN OF CUST	ODY/S	AMPI	LE ANAL	YSIS	REQUI	EST		F03-	-006-134	Page 1	of 1	
Collector Johansen/Pope/Pfiste	er		any Contact Hulstrom	Telepho 373-3				Project Co TRENT, SJ		Price	Code	8N	Data Tu	rnaround	'
Project Designation	4 OU - Borehole Soil Sampling		ling Location 5-B-12 (C3246); (14.5'-17	7')				SAF No. F03-006		Air Q	Quality		45]	Days	
Ice Chest No.	PC 02.40	Field HN	Logbook No. IF-N-3361		COA 117504	4ES10		Method of Federal I	•						
Shipped To EBERLING SERVICE	MOS-29-63 Reci	Offsi	te Property No.	030	_ 2 ′	78		Bill of Lac	ing/Air Bil	No.	S	EF	o Sprc	- .	
POSSIBLE SAMPLI Poten t	EHAZARDS/REMARKS		Preservation	Cool 4C	Cool 4		Non		/						
Special Handling a	•		Type of Container	aG	a/G		aG		h/aC			ļ	ļ		1
	Cool 4°C		No. of Container(s) Volume	60mL	1 125ml	ıL 60mL	60m	L 606	6011	i		<u> </u>	}		
	SAMPLE ANA	LYSIS	<u> </u>	See item (1) in Special Instructions.	See item (Special Instruction	al 353.2; Oil &c	Speci	(3) in Sen is en al Montal ions Vissuuci	u	- Н3		Tiet	b:		
Sample No.	Matrix *	Sample Date	Sample Time				لبلا								
B171B8	SOIL	5-29-1	1250	 X -	1-1/	X	Y _		_}_	- -		101711	49_	 -	-
															1
				 	 		 	_				 -	<u> </u>	 -	-
CHAIN OF PO	From Date/Time	Sign/Pri	ored in ERD	ate/Time 2	55	PECIAL INSTI	s to achie	ve a detection				-	5-29.03	Matrix *	1
Relinquished By/Removed Relinquished By/Removed B 172	d From Date/Time 15 d From Date/Time 10 d From Date/Time 10 d From Date/Time 10 d From Date/Time 11 d From Date/Time 11	Received By/St Received By/St Received By/St Received By/St Received By/St	ored in Dorothy Production of the Control of the Co	Pate/Time / 5	1000	(1) Alcohols, Glyce (2) Semi-VOA - 82 TPH-Diesel Range (3) Gamma Specter Gamma Specter Gamma Specter Gamma Specter Gamma Specter (4) Technetium-92 (4) Technetium-93 129; Nickel 63; No	ols, & Ke 270A (TC - WTPH- oscopy (K 1-on (Ces pium: Isol Smootiu	tones - 8015 { L); Semi-VOA D; TPH-Gasol Sesium-137; C ium-134, Radii opic Uranium n=89,99 Tet	-Butanol, Die - 8270A (Ac ne Range - W bait-60, Euro m-226, Radio	thyl ether, ld-On) (2- TPH-G picus-152, m-228, Ti	Ethylene Butoxyeth Europhum 2-126]; To	glycol, Methan tanol, Tributyl F134, Europiur otal Uranium, s	phosphate); m-155); Americium-	SE-Sediment SO-Solid SI-Studge W = Water O-Oil AND DS-Urger Solid P-Trasse W1-Wipe L-Liquid V-Vegetation X-Other)
LABORATORY	Received By				itle								Date/Time	<u> </u>	$\frac{1}{1}$
SECTION FINAL SAMPLE DISPOSITION	Disposal Method	<u>, — </u>		<u></u>	<u> </u>	Disp	osed By		 -			_ ,	Date/Time		1

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

JENT: TNU Hantow

rchase Order/Project:

DATE: 5.31.03

JF#/SOW#/Release#: F

F03-006

iboratory SDG #:

03051537

TE:		EXPLAINED II	THE COMM	ENT SECTION	
1.	Custody seals on coolers or shipping container intact, signed and dated?	y∕ Yes	. D №	D N/A	See Comment if
2.	Outside of coolers or shipping containers are free from damage?	TS Yes	□ No	□ N/A	D see Comment #
3.	Airbill # recorded?	ÎX Yes	D No	□ N/A	See Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	₩ Yes	□ No	O N/A	See Comment#
5.	Sample containers are intact?	by Yes	□ No	D N/A	D see Comment #
6.	Custody seals on sample containers intact, signed and dated?	Yes	□ No	□ N/A	□ see Comment #
7.	All samples on coc received?	Yes	□ No	D N/A	see Comment #
8.	All sample label information matches coc?	V Yes	D No	□ N/A·	□ see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	b Yes	□ N ₀	D N/A	See Comment #
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	byres	□ No	D N/A	D see Comment i
11,	Where applicable, bar code labels are affixed to coc?	D Yes	□ No	N/A	See Comment
12.	coc signed and dated?	Yes	□ No	DNA	D see Comment t
13.	coc will be faxed or emailed to client?	E Yes	□ No	□ N/A	□ sec Comment
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	D Yes	_ □ No	MINE	□ see Comment

Cooler # / temp (°C) and Comments:

ERC 01-030/03'C

Laboratory Sample Custodian:

Laboratory Project Manager:

Dynian

Lionville Laboratory, Inc. GRO ANALYTICAL DATA PACKAGE FOR TNUHANFORD F03-006 H2250

DATE RECEIVED: 06/04/03 LVL LOT # :0305L537

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B17122	001	S	03 LV J610	05/27/03	N/A	06/10/03
B171B8	003	S	03LVJ610	05/29/03	N/A	06/10/03
B171B8	003 MS	S	03LVJ610	05/29/03	N/A	06/10/03
B171B8	003 MSD	S	03LVJ610	05/29/03	N/A	06/10/03
LAB QC:						
TBLKKH	MB1	s	03LVJ610	N/A	N/A	06/10/03
		_			•	
TBLKKH	MB1 BS	S	03LVJ610	N/A	N/A	06/10/03



gour mis



Analytical Report

Client: TNU HANFORD F03-006

LVL #: 0305L537

SDG/SAF#: H2250/F03-006

W.O. #: 11343-606-001-9999-00 Date Received: 05-31-03, 06-04-03

GRO

The set of samples consisted of two (2) soil samples collected on 05-27,29-03.

The samples and their associated QC samples were analyzed according to Lionville Laboratory OPs based on SW-846 method 8015 for Gasoline range organics (GRO) on 06-10-03. The analysis met the intent of method WTPH-G.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

- 1. All results presented in this report are derived from samples that met LVLI's sample acceptance policy.
- 2. All required holding times for analysis have been met.
- 3. The method blank was below the reporting limits for all target compounds.
- 4. All surrogate recoveries were within acceptance criteria.
- 5. The blank spike recovery was within acceptance criteria.
- 6. All matrix spike recoveries were within acceptance criteria.
- 7. All initial calibrations associated with this data set were within acceptance criteria.
- 8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
- 9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

pef\Rrgroup\data\gro\tnu\\05L~537.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 10 pages.

W V L

GLOSSARY OF GASOLINE RANGE ORGANICS DATA

DATA QUALIFIERS

- U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I = Interference.

ABBREVIATIONS

- BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- **BSD** = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- **DL** = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA = Not Applicable.
- **DF** = Dilution Factor.
- NR = Not Required.
- SP = Indicates Spiked Compound.



GLOSSARY OF GASOLINE RANGE ORGANICS DATA

- **D** = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C = This flag applies to a compound that has been confirmed by GC/MS.

R:/SHARE/GCVOLATILE/GCVOLATILEGLOS.DOC

Lionville Laboratory, Inc.

GAS RANGE ORGANICS

Client: TNUHANFORD F03-006 H2250 Work Order: 11343606001 Page: 1 RFW Batch Number: 0305L537 TBLKKH BS B171B8 B171B8 B171B8 TBLKKH B17122 Cust ID: 03LVJ610-MB1 03LVJ610-MB1 003 MS 003 MSD Sample RFW#: 001 003 SOIL SOIL SOIL SOIL Information Matrix: SOIL SOIL 1.00 1.00 1.00 1.00 1.00 1.00 D.F.: UG/KG UG/KG UG/KG UG/KG Units: UG/KG UG/KG 99 86 90 % 86 왕 97 Fluorobenzene 왕 82 % 74 30 U 98 Gasoline Range Organics (GRO) 170 U 110

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

S

Report Date: 06/22/03 09:00

Lionville Labor	atory U	lse Only	Custo	dy Trar	nsfe	er F	Rec	ord/l	_ab \	Wo	rk	Re	qu	es	t Pa	age_	of	<u> </u>	-	1	3	V	1	1
0305	<u> L5</u>	37		FIELD PERS	ONNE	L: C	OMPLE	TE ONL	Y SHAD	ED A	REA	S		Cr	I	ර	B		Ċ.	D		ONVILLE LA	HORATOR	RY ING.
Client TN	4.11	المدي حما	FAR	-006			Refrige	rator #		1							2							
									Liquid							·								
Est. Final Pro	y. Samp 1	אוחק Date 13167 - 60	4- 001-	9919-00			#/Type	Container	Solid	مما	TAY			4109	bee	۱مع	امما		وما	bao	lae	4	اعم	
									Liquid	1									•		1			
Lionvilla Labo	retoru	Project Mana	~ Orl	the god	nder		Volume		Solid	LO	120			+	60	ψO	LO		00	60	40	-1	40	1
QC SPEC	natory _	Tal 51)	TAT .	3000			Preserv	ratives							_		1			<u></u>			-	=
							ANALY	GES	_			ANIC		SES	古	حر ج	INC		}	+ 3	2.0	- §	3 1	اخ
Date Rec'd	5.31.	03/64.0	Date Due	7-4-03 6-30-0	23		REQUE			0\\ 82\\ 82\\		Pest/ PCB	Herb	Alcehe Sixes	虚	Chloro Herr	Met	S	3 5	हिंदू	202	Ec Pui	360	\$5
					Mat	triv			[Ţ		Lionvi			ory Us	e Onl		1			
MATRIX CODES:	Lab]			Cho	C	 ••-• •	Date	Time	I					*	×	ଚ		و	at a	4	3	IN3NI Toggr	أورا
S - Soil SE - Sediment	QI	·	Client ID/Descri	iption	(1)		Matrix	Collected	Collected	おかて90	OLIS X			0kac	H 9090	OHBEX	6.70	1	3	TOGGR	X (C) X	8	200	Ceb
SO - Solid SL - Sludge				· <u> </u>		MSD				ర							¥.		H	H	 	म	44	4
W - Water O - Oil	∞	BITI	22		×	*	S	5.27.03	1110	X		WAL		X	9Vo	<u> </u>	X		X	X	X	X		
A - Air DS - Drum	മാ	B171	B7					5290	1115			rcr	/		X					<u> </u>	<u> </u>			اــــا
	<u>&</u>						ر	529.03	1250		X	1/12	5.7)	X	1/10	24	/					V	X	X
Liquids L - EP/TCLP											<u> </u>							<u> </u>	ļ.					
Leachate WI - Wipe	P/TCLP pachate									<u> </u>														
X - Other F - Fish				· · · · · · · · · · · · · · · · · · ·					<u>.</u>											<u> </u>				
]															j	
I																								
Special Instruct	lions:	SAF	# F03-	006	•	DATE/	REVISIO	ns: 1. Per C	1.24	411		1. 4		. 4		Λ3			Lionvi	lle Lab	огаtогу	Use Or	nty	
Run M	atrix.	QC +da	not use	-001) 1 ,		6-2	-03	1. 107	1184 /	104	Process of	13	CONTRO N	, 10	<u>, </u>	""		amples Shippe		~		mper Resi		
								2									- н	and De			1) Pa	Present ackage	pr Dor	ter N
MLT (0 :	rcra	+ Sb, Be, 1	Bi, B, Cu,	N.				3									- Ai	rbill#			2)	Unbrok	en on C	Outer
znoego:	IC - C1	(, F, NO, NO	ی, ۵۹ پر ۵۶ پ	INHON, LOH,	ICMO			4									_ 2)	Ambie	nt of C	miled)		ackage (Present	ton Sa	ımple
								5	· <u>-</u>									Receivendention				((7) or	
}							. —	6			_						,	Sampi		7 IN		Unbrok ample		N
Relinquishe	d	Received	Date	Time	Relinquis		\overline{T}	Received	,)ate	F1.	ne	Disc	repand	es Betv	veen	است	roperty		ved or Ni	C	OC/Rec	ord Pre	sent
by	- ,	by.		 	≎C _A	200	: TE		rigin		{		Sam	iples La	ibels an	nd	5) Received Within			Uį	pon Sap	riple Re		
2000	\&	Limple	n 53.0	गाउट		Š		RE	WRIT	IE	h		NOT		d?Y) H	olding T	Timbes (Y)	or N	Co Ta	ooler emp T	こる	· oc
HOUEX	18	OMPmix	h 64.03	109a5										# 8	<u> 786</u>	35	074	152	.38				المحدم	_
		71																北	79	079	893	733	971	<u></u>

FH-Central Plateau Pro	iect	CHAIN	OF CUST	ODY/S	AMPLI	EANALY	/SIS	REQUEST	r	F03	-006-107	Page 1	of I
Collector Johansen/Pope/Pfister		Company Con	ntact	Telephor	ne No.			Project Coordi	nator	Price Code	8N	Data Tu	naround
Project Designation 200-PW-2/200-PW-4 OU - Borehole S	oil Sampling	Sampling Lo	-		·			SAF No. F03-006		Air Quality		45]	Days
Ice Chest No		Field Logboo HNF-N-330	k No.		COA 117504ES	310		Method of Ship Federal Expo					
Shipped To 1WO 5-31-03 EBERLING SERVICES (Formerly Th		Offsite Prope		SR	1071	92		Bill of Lading	'Air Bill N	<u></u> کل	A-		
POSSIBLE SAMPLE HAZARDS/RE	MARKS BITLES BIT	134 Salut 6		Cool 4C	Cool 4C	None aG	Cool 4		Cool 4C	Cool 4C	None	None aG	None aG
Special Handling and/or Storage							1	1	1	1	1	1	\$ 1
			Volume	60mL	125ml	60mL	60m	L 125ml.	60mL	60mL	60mL	60mL	60mL
SA	MPLE ANALYSIS			See item (1) in Special Instructions. みられ VOA 8200 FI	Sports A) S	n See item (3) in Special Instructions.	Chromi Hex - 7		NO2/NO3 353.2	Oil & Grease - 413.1	See item (5) in Special Instructions	Secretary (6) in Capacial Instructions.	Tritium - H3
	fatrix * Sample		Sample Time						9 (1) 2			eren.	
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		-03	1030	X		X	X	<u> </u>	X	+ X-	 	ານ <i>ຣອາ -</i> ⊴	3 2
	0011 5-27 5611 5-27	-63	1030	Х	X	×		XXX	X	X,		m750	
				}	1								
Relinquisthed By/Removed From Relinquisthed By/Removed From Relinquisthed By/Removed From Relinquisthed By/Removed From Relinquisthed By/Removed From Relinquisthed By/Removed From To be a second from the first	ate/fime 15 Received	By/Stored in	728 728 10 53	Date/Time ** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. ** The laboratory is to report both kerosene and diesel range compounds from WTPH-D analysis. 2(1) Alcohols, Glycols, & Ketones - 8015 [1-Butanol, Diethyl ether, Ethylene glycol, Methanol] 2(2) Semi-VOA - 8270A (TCL); Semi-VOA - 8270A (Add-On) {2-Butoxyethanol, Tributyl phosphate}; TPH-Diesel Range - WTPH-G 3) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) {Antimony, Beryllium, Bismuth, Boron, Copper, Nickel}; Mercury - 7471 - (CV) (4) IC Animon - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Ammonia - 350.3; pH (Soil) - 9045; Total Cyanide - 9010 (3) Gamma Spectroscopy [Casium-137, Cotont-D, Europium-152, Europium-154, Europium-159]; Casum-Spectroscopy [Casium-137, Cotont-D, Europium-152, Europium-154, Europium-159]; Technetium-99; Strontium-89 90 - Total Sr. Isotopic Thorium (Thorium-232); Carbon-14; totime-121 Title 10 4 I Left 'S (2) + (4) Per Street (4) - Date/Time 20 5 - Soille Strontium - Soil Sr. Isotopic Thorium (Thorium-232); Carbon-14; totime-121 **Title** **The laboratory is to achieve a detection limit of 50.0 pC/g for Carbon-14.** **Soil Strontium - Soil Strontium - Soil Sr. Isotopic Thorium (Thorium-232); Carbon-14.** **Soil Strontium - Soil							SE-Sotiment SC-Solid SC-Solid St-Shaligs W = Water C-Oil A-Air DS-Dream Solids DL-Dream Liquids T-/Thams W/F-Wijee L-Liquid V-Vegetation X-Siles		
FINAL SAMPLE Disposal Method DISPOSITION	.,					O Dispo	sed By					Date/Time	

FH-Central	Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST F03-006-133 Page 1 o						of 1					
Collector Johansen/Pope/Pfister	r	Comp	any Contact Hulstrom	Telepho 373-3	ne No.		_ T	Project Coordin	ator	Price Code	8N	Data Tur	naround
Project Designation	OU - Borehole Soil Sampling	Samp	ling Location i-B-12 (C3246); (0.5')					SAF No. F03-006		Air Quality		45 I	Days
	PC-02-402	— HN	Logbook No. IF-N-3361		COA 117504ES	10		Method of Ships Federal Expres					
Shipped To CONTROL SERVICE	ECRA PE	Offsit	e Property No.	030	228	y 5		Bill of Lading/	Lir Bill l	No. <u>S</u>	e e	SPC	
Possible sample	EHAZARDSTREMARKS (4) Redioanting To B1711	10	Preservation	Cool 4C	Cool 4C								
i		18	Type of Container	aG	aG								
Special Handling a	na/or Storage このの14 c		No. of Container(s)	1	1								
{ 	20011-	•	Volume	60mL	60mi.		_						
	SAMPLE ANAL	YSIS		Pesticides - 8081	Chloro- Herbicides - EPA8151								
							~ ~ ~ ~	TICIO:	2007ma				
Sample No.	Matrix *	Sample Date					ب بنسب						
B171B7	SOIL	5-29-0	3 1115	X	 X	 		מודוכן			 	 	
		.—		 	 	 					 	 	
											<u> </u>		
Relinquished By/Removed Relinquished By/Removed Relinquished By/Removed Relinquished By/Removed Relinquished By/Removed Relinquished By/Removed Relinquished By/Removed Relinquished By/Removed	ate/Time ate/Time ate/Time ate/Time ate/Time ate/Time	55 mm	Che laboratory is to	report	NS				Date/Time	Matrix * S-Soti S-Societ SO-Solid Si-Studge W = Water O-Oil A-Air DS-Drum Solids DL-Drum Liquids T-Tisses W1-Wips L-Liquid V-Vegetation X-Other			
FINAL SAMPLE DISPOSITION	Disposal Method					Dispose	at By					Date/Time	

FH-Central Plates	u Project	C	HAIN OF CUST	ODY/S	AMPL	E ANALY	YSIS	REQUES'	Γ	F0	3-006-134	Page 1	of 1
Collector Johansen/Pope/Pfister			any Contact Hulstrom	Telepho 373-3				Project Coord TRENT, SJ	inator	Price Code	8N	Data Tur	
Project Designation 200-PW-2/200-PW-4 OU - B	orehole Soil Sampling		ling Location 5-B-12 (C3246); (14.5'-17	?")				SAF No. F03-006		Air Qualit	y 🗆	45]	Days
Ice Chest No.	02.402	Field	Logbook No. IF-N-3361		COA 1175041	ES10		Method of Shi Federal Expr	-			·	
Shipped To 1705 EBERLINE SERVICES (For	-29-63 Reco	Offsit	e Property No.	930	_27	78 		Bill of Lading	/Air Bill N	io.	SEE	OSPC	•. •
POSSIBLE SAMPLE HAZA	RDS/REMARKS		Preservation	Coal 4C	Cool 4C	C Cool 4C	None		None				
Special Handling and/or S	•		Type of Container	aG	aG	aG	aG	aG	h/aG		<u> </u>	ļ	
- -	144		No. of Container(s)	1	1	1	1		1				
			Volume	60mL	125ml.		60m)	5/	60mL				
	SAMPLE ANAL	ysis		See item (1) if Special Instructions.	See item (2 Special Instruction	353.2; Oil &	Sec item (Specia Instructi		Tritium - l	13	Ties	b:	
Sample No.	Matrix *	Sample Date	Sample Time		المسادرية	1						1	
B171B8	SOIL	5-29-0	1250	X	1-X	 	<u> </u>		-	-	ורוש	ψ <u>9</u>	
												<u> </u>	
									-		 	 	
CHAIN OF POSSESSIC Religions and By Removed From Relinquished By/Removed From R. F. L. L.	Date/Time 150	Received By/Sto	Reform D	ate/Time 1 29.03 ate/Time 1 4	515	ECIAL INSTR The taboratory is * The laboratory is i) Alcohols, Glyco	to sobies to report ls, & Ket	e a detection limit both kerosene and ones - 8015 {1-Bu	diesel rang tanol, Diethy	e compounds from	om WTPH-D and ne glycol, Methan	30l}	Matrix * S=Soil SE=Softment SO=Solid S=Sludge W = Water
Relinquished By/Removed From	Date/Time 00	Received By/Sto	ored in P. Fahll	ate/Time	\$ 6 A C	PH-Diesel Range -) Gamma Spectro amma Spec - Add- 11, Isotopic Pluton 1) Technetium-92; 20; Mickel 63; Neg	scopy (C on (Cesi ium: Isoto Strontium	ocium 137, Cobah un-134, Radium-2 opic Uranium a 25,00 — Total Sr	-60, Europit 26, Radium-	m=152; Europt e 228, Tin-126);	Total Uranium;	Americium	O-Oil DS-Unum Solids- DL-Unum Solids- DL-Unum Church T-Trisue WI-Wipe L-Liquid V-Vegetation
Relinquished By/Ramoved From	Pate/Time Date/Time	Received By/Sta	100 in 6-40	Pate/Time 13 / 05 a Pate/Time	5-								X=Other
LABORATORY Received E SECTION	by			Т	itle							Date/Time	
FINAL SAMPLE Disposal N DISPOSITION	Aethod					Dispo	sed By					Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

JENT: TNU Handow

rchase Order/Project:

DATE: 5-31.03

F#/SOW#/Release #: F03-004

iboratory SDG #:

3051537 OTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION Q/Yes Custody seals on coolers or shipping D N/A D see Comment # container intact, signed and dated? Outside of coolers or shipping containers are ZVYes D No see Comment # free from damage? Airbill # recorded? 3. D No DNA See Comment # All expected paperwork received (coc and other client specific: historical data, □ No DNA ☐ set Comment # alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) Sample containers are intact? D No D N/A D see Comment # Custody seals on sample containers intact, D No. DNA see Comment # signed and dated? All samples on coc received? Ø Yes D No DINA D see Comment # ∇⁄ Yes D No see Comment # D N/A All sample label information matches coc? 8. Laboratory QC samples designated on coc? 9. D No DNA See Comment # (QC stickers placed on bottles?) 10. Shipment meets LvLl Sample Acceptance D No D N/A D see Comment # Policy? (identify all bottles not within policy. See reverse side for policy) 11. Where applicable, bar code labels are D Yes D No ÞМΨ See Comment # affixed to coc? ₩ Yes D No D N/A D see Comment # 12. coc signed and dated? Yes. 13. coc will be faxed or emailed to client? D No DNA D see Comment # 14. Project Manager/Client contacted W N/A ☐ Yes D No ☐ see Comment # concerning discrepancies? (name/date)

Cooler # / temp (°C) and Comments:

ERC 01-030 /0.3'C

Laboratory Sample Custodian:

Laboratory Project Manager:

Dynier

Lionville Laboratory, Inc. HBGX ANALYTICAL DATA PACKAGE FOR TNUHANFORD F03-006 H2250

DATE RECEIVED: 06/04/03 LVL LOT # :0305L537

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B171B7	002	S	03LE0699	05/29/03	06/07/03	06/12/03
B171B7	002 MS	S S	03LE0699	05/29/03	06/07/03	06/12/03
B171B7	002 MS	SD S	03LE0699	05/29/03	06/07/03	06/12/03
LAB QC:						
PBLKVR	MB1	s	03LE0699	N/A	06/07/03	06/12/03
PBLKVR	MB1 BS	s s	03LE0699	N/A	06/07/03	06/12/03
PBLKVR	MB1 BS	SD S	03LE0699	N/A	06/07/03	06/12/03



Marphis



Analytical Report

W.O.#: 11343-606-001-9999-00

Date Received: 06-04-03

Client: TNU HANFORD F03-006

LVL#: 0305L537

SDG/SAF#: H2250/F03-006

HERBICIDE

One (1) soil sample was collected on 05-29-03.

The sample and its associated QC samples were extracted on 06-07-03 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 06-12-03. The extraction and analysis procedure was based on method 8151A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

- 1. All results presented in this report are derived from samples that met LVLI's sample acceptance policy.
- 2. All required holding times for extraction and analysis have been met.
- 3. The method blank was below the reporting limits for all target compounds.
- 4. All surrogate recoveries were within acceptance criteria.
- 5. One (1) of sixteen (16) blank spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
- 6. Three (3) of sixteen (16) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
- All initial calibrations associated with this data set were within acceptance criteria.
- All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
- 9. To the best of my knowledge, this data report is in compliance with the terms and conditions of the purchase order, both technically and for completeness, for other than the conditions detailed in the case narrative. Release of the data contained in this hard copy data package and in the electronic data submitted on diskette has been authorized by the cognizant laboratory manager or his/her designee to be accurate as verified by the following signature.

Laboratory Manager

Iain Daniels

Lionville Laboratory Incorporated

pef\r:\group\data\herb\\tnu\05L-537.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 11 pages.

sample Discrepancy Rej	port (SDR) SDR #: 036C 250
Batch: 03051537 Samples: MS, MSD 450 Method: SWB45/MCAVW/CLP/	
•	Dong Sample Pulled Label ID's Illegible servation Wrong Received Past Hold Servation Wrong Received Past Hold Servation Wrong Received Past Hold Servation Wrong Received Past Hold Servation Wrong Servation Wrong Received Past Hold Servation Wrong
Other Description: Non	-6/30/03
ed, forward original to QA Specia Route Dia Taylor Haslett niels	Explanation: Alist for distribution and filing. Stribution of Completed SDR Metals: Beegle Inorganic: Perrone GC/LC: Kiger MS: Rychlak/Layman Log-in: Melnic Admin: Soos
	Batch: 03051537 Samples: MS,MSD \$50 Method: SWB45/MCAWW/CLP/ Ble Error Client Request ion Error Wrong Test Code Ontainer Broken Wrong Test Code Ontainer Broken Preson Code Ontainer Broke



GLOSSARY OF HERBICIDE DATA

DATA QUALIFIERS

- U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I = Interference.

ABBREVIATIONS

- BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA = Not Applicable.
- DF = Dilution Factor.
- NR = Not Required.
- SP = Indicates Spiked Compound.



GLOSSARY OF HERBICIDE DATA

- This flag is used for an Herbicide target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form 1 and flagged with a "P".
- This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C = This flag applies to a compound that has been confirmed by HPLC.

Lionville Laboratory, Inc.

Herbicides, Special List

Report Date: 06/30/03 10:06 Client: TNUHANFORD F03-006 H2250 Work Order: 11343606001 Page: 1 RFW Batch Number: 0305L537

	Cust ID:	B171B7		B171B7	7	B171B	7	PBLKVR		PBLKVR BS		PBLKVR BS	D
Sample	RFW#:	002		002 M	3	002 MS	D	03LE0699-M	B 1	03LE0699-1		03LE0699-	
Information	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.0	00	1.	00	1.0	0	1.0	00		00
	Units:	ug/kg		ug/)	κg	ug/	kg	ug/k	g	ug/}	kg	ug/	'kg
Surrogate:	DCAA	93	<u></u>	73	 ૄ	81	%	138	*	112	ક	148	ક
			fl==:		==fl=	======	== f l	_========	=f1	_========	==fl	========	==f
Dalapon	•	180	U	60	8	68	%	170	U	94	왕	120	8
Dicamba		71	U	35	* %	46	* %	67	Ü	83	8	115	8
Dichloroprop		180	U	66	8	75	%	170	Ü	92	ક	118	8
2,4-D		35	U	83	옿	67	%	33	U	99	*	126	*
2,4,5-TP (Silvex)		18	U	122	왐	111	왕	17	U	90	ક	114	ò
2,4,5-T		18	U	60	8	65	ક્ષ	17	U	90	왕	120	%
2,4-DB		180	U	81	ક્ર	58	* %	170	U	87	*	112	*
Dinoseb		18	U	74	ક	85	8	17	U	91	8	122	* %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Custody Transfer Record/Lab Work Request Page of 1 Lionville Laboratory Use Only FIELD PERSONNEL: COMPLETE ONLY SHADED, AREAS 0305L537 Refrigerator # F03-006 client TNU Harrford Liquid Est. Final Proj. Sampling Date #/Type Container Project # 11343 - 606 - 001 - 9999 - 00 Solid Liouid Project Contact/Phone # _____ Lionville Laboratory Project Manager Orlette Online 40 60 **Preservatives** TAT 3000AD Date Rec'd 5:31:03/64.03 REQUESTED Lionville Laboratory Use Only Matrix MATRIX QC CODES: Date Time Lab Chosen Matrix Client !D/Description Collected Collected S - Soll (v) SE - Sediment SO - Solid MS MSD St. - Sludge W - Water B17122 5.27.03 1110 Ωì 0 - OII A - Air 529.031115 losa DS - Drum Solide ട്രാ 52908 1250 DL - Drum Liquids EP/TCLP Leachate WI - Wipe X - Other F - Fish DATE/REVISIONS: SAF # F03-006 Special Instructions: 6-5-03 , Per Client Add miles + amont to -003 Lionville Laboratory Use Only Run Matrix QC (do not use -001) 5th Samples were; Tamper Resistant Seal was: 1) Shipped V or 1) Present or Outer Hand Delivered ____ Package (or N MET O = RCRA + Sb. Be. Bi. B. Cu. Ni Airbill # 2) Unbroken on Outer Package (V) or N ZNORGED - IC-CI, F. NO., NOZ., PO., SOY, INHIN, LPH, ICMO ______ 4. 2) Ambient of Chilled 3) Present on Sample (Y) or N 3) Received in Good Condition Y or N 4) Unbroken on 4) Samples Sample 7 or N Property Preserved COC/Record Present Relinquished Received Relinguished Received Discrepancies Between Time Time by ORIGINA! Upon Sapiple Rec't Samples Labels and 5) Received Within COC Record? Y or A Cooler Temp. **5**.3 ℃ Holding Times NOTES: # 8393 5074 5238 #7907 9893 7339 10.200

יו ייאט ווער לש)

FH-Central Plateau	Project	CHA	IN OF CUST	ODY/S	AMPLI	E ANALY	SIS	REQUES	r	F03	-006-107	Page 1	of 1
Collector Johansen/Pope/Pfister		Company LC Hui		Telepho 373-3				Project Coord TRENT, SJ	mator	Price Code	8N	Data Tur	naround
Project Designation 200-PW-2/200-PW-4 OU - Borel	hole Soil Sampling	Sampling Location SAF No. 216-A-10 (C3247) 62.5-65 ft SAF No. F03-006						45]	Days				
Ice Chest No.	01-030	Field Log HNF-N			COA 117504ES	S10		Method of Shi Federal Exp					!
Shipped To 100 5-27-0 EBERLINE SERVICES (Forme		Offsite P	roperty No. R	SR	1071	92_		Bill of Lading	/Air Bill ?	10. N	A-		
DACCIDI P CAMDI P UATADN	STREMARKS BITTED: BITT	וויצויעו	Preservation	Cool 4C	Cool 4C	None aG	Cool 4		Cool 40	Cool 4C	None	None aG	None aG
Special Handling and/or Stor	rage (BFIII)	((Edle	Type of Container No. of Container(s)	1	1	1	1	+ +	1	 ~		1	\$
· .			Volume	60mL	125ml	60mL	60m	125ml	60mL	60mL	60mL	60ml.7/	60mL
	SAMPLE ANALYSIS			Sou item (1) in Special Instructions. みんん VOA 8260 F	Special Instructions		Chromi Hex - 7		NO2/NO3 353.2	- Oil & Grease - 413.1	See item (5) in Special Instructions	L/Calmerial	Tritium - H3
Sample No.	Matrix * S	imple Date	Sample Time				2.0	2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	() • E)m	
B17416 FE 5.2 8-43	30IL 5	27-03	1030	X	/×	X	X	118	X	 X	1/	10 5 2 7 - 0	3
8년 8년197 1911년		77-03 77-03	1030	Х	X	X		X	X	X,		MISO	-03
CHAIN OF POSSESSION		Sign/Print N	ismes		SPE	CIAL INSTR	UCTIC) INS					Matrix *
Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From	Date/Time / Octor Date/Time / Octor Date/Time / Octor Date/Time / Octor Date/Time / Octor Date/Time / Octor Re 31.03/11:35	seived By/Stored	3728 D	ate/Time	77 7(1) 27 7(1) 27 7(1) 27 7(1) 27 7(1) 28 7(1) 29 7(1) 20 8 7(1)	The laboratory is ort both kerosene Alcohols, Glycol Semi-VOA - 82' H-Diesel Range - 1CP Metals - 60' Metals - 60' Metals - 6010A reasy - 7471 - (C IC Anions - 300' il) - 9045; Total of Gamma Spectro came Spectro came Spectro (C IC Anions - 300') H-Comma Spectro (C IC Anions - 300') 10 A I II	to achieve and diese ls, & Ket 10A (TCI WTPH-I 10A (Supertra V) 0 (Chlor Cyanide - scopy (Coa [Coa [Coa [Coa [Coa [Coa [Coa [Coa [we a detection limit et range compound ones - 8015 (1-Bu.); Semi-VOA - 8 ; TPH-Gasoline Restrace) (Arsenic, noe Add-On) (Antide, Fluoride, Nitr. 9010 caium 137, Cotall am 134, Raffaun 2 ppg On Total St.	s from WTF tanol, Diethy 270A (Add- ange - WTF Barium, Car mony, Baryl ate, Nitrite, I -80, Eliropit 26, Radium-	H-D enalysis. A ether, Ethylene On) (2-Butoxyeth H-G traium, Chromium lium, Bismuth, Bo hosphate, Sulfate 11-152, Burupium 228, Tu-126]; T	glycol, Methan hanol, Tributyl n, Lead, Selenin oron, Copper, I c); Ammonia - s-154, Europius otti Uranium, 2 2323; Carbon-	phosphate); am, Silver); Nickel); 350.3; pH n=133); Americana.	S-Sail SC-Solid SC-Solid SC-Solid SC-Solid SC-Solid SC-Solid SC-Solid A-Air DS-Dryam Solids DL-Dryam Liquids T-Tianue WI-Wipe L-Wipe L-Wipe V-Vegetation X-Distr
FINAL SAMPLE Disposal Methods DISPOSITION	aod					O Dispo	sed By			(0	Date/Time	

FH-Central Plateau	ı Project	C	HAIN OF CUST	ODY/S	SAMPLE	ANALY	SIS	REQUEST		F03	-006-133	Page 1	of i
Collector Johansen/Pope/Pfister	 	Comp	nny Contact Hulstrom					Project Coordin	ator	Price Code	8N	Data Tur	naround
Project Designation 200-PW-2/200-PW-4 OU - Bo	rehole Soil Sampling		ling Location -B-12 (C3246); (0.5')	■				SAF No. F03-006		Air Quality		45 1	Days
	-02-402	<u>н</u>	Logbook No. F-N-3361					Method of Ship Federal Expre			······································		
Shipped To KECK	P PE	Offsit	e Property No.	030	228	,		Bill of Lading/	Air Bill N	^{to.} 5	ee c	OSPC	
Possible sample Hazar Potentialu R	EDS/REMARKS		Preservation	Cool 4C	Cool 4C					1.		<u>.</u>	
		18	Type of Container	aG	вG								
Special Handling and/or St	orage		No. of Container(s)	1	1								
	0, 1		Volume	60mL	60mL								
	SAMPLE ANAL	YSIS		Pesticides - \$081	Chloro- Herbicides - EPA8151								
								TILD:					
Sample No.	Matrix *	Sample Date	Sample Time				a, ta selan kar						
B171B7	SOIL	5-29-0	3 1115	X	 			13710		 -			
ļ												 	
Relinquished By/Removed From Calcar									S-Soll SC-Solid SI-Sladge W = Water O-Oil				
FINAL SAMPLE Disposal Me	ethod					Dispos	ed By					Date/Time	

FH-Central Plateau Project	СН	AIN OF CUST	ODY/S	AMP	LE ANALY	YSIS	RJ	EQUEST		FO	3-006-134	Page 1	of 1	1
Collector Johansen/Pope/Pfister	Company Contact Telephone No. LC Hulstrom 373-3928						Project Coordinator TRENT, SJ Price Code			Code 8N Data Turna		naround	-	
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling	Sampling Location 216-B-12 (C3246); (14.5-17')					SAF No. Air Quality				у 🗆	Days			
Ice Chest No. ERC 5 2 - 402	Field L	ogbook No. -N-3361		COA 117504	4ES10			ethod of Ship Federal Expre		· · ·				
Shipped To 1705-29-63 Recra	Offsite 1	Property No.	230	_ 2 '	78		Bi	ill of Lading/	Air Bill N	lo.	SEE	o SPC	<u>-,</u>	
POSSIBLE SAMPLE HAZARDS/REMARKS POTENTION Redoctive Tield B171N9		Preservation	Cool 4C	Cool 4	IC Cool 4C	Non		None aG	None.					
Special Handling and/or Storage		Type of Container	1 1	1	1				2/~	- 		ļ <u>.</u>		4
Cool 4° c	}	No. of Container(s) Volume	60mL	125m		60m	ıL	60A	60mL		-{			$\frac{1}{2}$
SAMPLE ANALYSIS	J.	Volume	See item (1) in Special Instructions.	See item (' Specia Instructio	i 353.2; Oil &	See item Speci Instruct	ini	Sky item (4) in	Tritium - F	в	Tiet	b:		
Sample No. Matrix * Sam	ple Date	Sample Time	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	د بر العمامية رخير شام سأم					ريا المدارية المرارية المدارية المدارية المدارية المدارية المدارية المدارية المدارية المدارية المدارية المدارية					N N
B171B8 SOIL	-29-03	1250	X	 	X	<u> </u>				 	13171	9	 	-
														•
CHAIN OF POSSESSION	Sign/Print	Names	<u> </u>] 	PECIAL INSTR	HCTIC	ONS	<u></u>	ł				Matrix *	4
Retinquished By/Removed From Retinquished By/Removed From Retinquished By/Removed From Retinquished By/Removed From Retinquished By/Removed From Retinquished By/Removed From Retinquished By/Removed From Retinquished By/Removed From Rece Retinquished By/Removed From Rece Retinquished By/Removed From Rece Retinquished By/Removed From Rece Rece Retinquished By/Removed From Rece Rece Rece Rece Rece Rece Rece Rece Rece Rece Rece Rece Rece	ved By/Store ved By/Store ved By/Store ved By/Store ved By/Store	din ER Di Rfahen Di din Di din Di din Di Di Trahil din Di din Di din Di din Di	ate/Time ate/Time	55	** The laboratory is ** The laboratory is (1) Alcohols, Glyco (2) Semi-VOA - 82: TPH-Diesel Range - (3) Gamma Speetro Gamma Speetro Gamma Speetro (4) Technetium-99: 129; Nickel 63; Neg	to reported to rep	tone: L); S D; T Cosin inn- topic m-20	detection limit of th kerosene and of s - 8015 {1-Buta semi-VOA 82: PH-Gasoline Ra am-137, Cobah-6 134, Radium-22:	not, Diethy 70A (Add-Cange - WTP 6, Europius 6, Radiums	compounds fr l ether, Ethyler On) {2-Butoxy H-G m -152, Europh 228, Tin-126};	om WTPH-D and se glycol, Methan shanol, Tributyl j mr-134, Europium Total Uranium, /	oi} shosphate}; F133};	S-Soil SE-Science SC-Soild SI-Shudge W = Water O-OB A-Ail Displayer Soilde- T-Trouge W-Wipe L-Liquid V-Vegetation X-Other	
LABORATORY Received By SECTION			Ti	itle						. _		Jaces I tilite		
FINAL SAMPLE Disposal Method DISPOSITION					Dispo	osed By						Date/Time	·	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

IENT: TNU Handow

chase Order/Project:

DATE: 5-31.03

F#/SOW#/Release#:

F03-004

boratory SDG #:

TE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION Custody seals on coolers or shipping D/Yes D No DINA D see Comment # container intact, signed and dated? Outside of coolers or shipping containers are EVY CS D No D N/A D see Comment # free from damage? Airbill # recorded? D No DNA D see Comment # All expected paperwork received (coc and ₽ Yes other client specific: historical data, D No D N/A D see Comment # alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) Sample containers are intact? NY Yes D No D N/A 🖸 see Comment # Yes Custody seals on sample containers intact, D No. DNA ☐ see Comment # signed and dated? All samples on coc received? 7. 🕅 Yes D No D N/A See Comment # V Yes O No All sample label information matches coc? D N/A D see Comment # 8. Laboratory QC samples designated on coc? □ No D N/A D see Comment # (QC stickers placed on bottles?) 10. Shipment meets LvLl Sample Acceptance Q/Yes D No DWA D see Comment # Policy? (identify all bottles not within policy. See reverse side for policy) 11. Where applicable, bar code labels are D Yes D No ΔMV D see Comment # affixed to coc? D Yes DNA DNo D see Comment # 12. coc signed and dated? 13. coc will be faxed or emailed to client? W Yes D No D N/A D sec Comment # 14. Project Manager/Client contacted TY Yes D No D see Comment # concerning discrepancies? (name/date)

Cooler # / temp (°C) and Comments:

ERC 01-030/03'C

Laboratory Sample Custodian:

Laboratory Project Manager:

0 Ministr

Lionville Laboratory, Inc. DRO ANALYTICAL DATA PACKAGE FOR TNUHANFORD F03-006 H2250

DATE RECEIVED: 06/04/03

LVL LOT # :0305L537

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B17122	001	 s	03LE0686	05/27/03	06/05/03	07/08/03
B17122 B171B8	003	S	03LE0686	05/27/03	06/05/03	06/21/03
B171B8	003 MS	s	03LE0686	05/29/03	06/05/03	06/21/03
B171B8	003 MSD	S	03LE0686	05/29/03	06/05/03	06/21/03
LAB QC:						
BLK	MB1	s	03LE0686	N/A	06/05/03	06/21/03
BLK	MB1 BS	S	03LE0686	N/A	06/05/03	06/21/03

J4 21 11 (3





Analytical Report

W.O. #: 11343-606-001-9999-00 Date Received: 05-31-03;06-04-03

Client: TNU-HANFORD F03-006

LVL #: 0305L537

SDG/SAF #: H2250/F03-006

DIESEL RANGE ORGANICS

The set of samples consisted of two (2) soil samples collected on 05-27,29-03.

The samples and their associated QC samples were extracted on 06-05-03 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 07-08-03. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8015B. The analysis met the intent of method WTPH-D.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

- All results presented in this report are derived from samples that met LvLI's sample acceptance policy. 1.
- 2. All required holding times for extraction and analysis have been met.
- 3. The method blank was below the reporting limits for all target compounds.
- 4. All obtainable surrogate recoveries were within acceptance criteria.
- 5. The blank spike recovery was within acceptance criteria.
- 6. All matrix spike recoveries were within acceptance criteria.
- 7. Sample B17122 required a 1000-fold instrument dilution due to the high concentrations of target analytes. Reporting limits have been adjusted to reflect the necessary dilutions.
- 8. All initial calibrations associated with this data set were within acceptance criteria.
- 9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
- I certify that this sample data package is in compliance with SOW requirements, both technically and 10. for completeness, other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Laboratory Manager

Lionville Laboratory Incorporated

pef\r:\group\data\dro\tnu hanford\05L-537.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 11



GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

- U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I = Interference.
- Indicates an interference on one analytical column only. Result is reported from remaining analytical column.

ABBREVIATIONS

- BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- **DL** = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA = Not Applicable.
- **DF** = Dilution Factor.
- NR = Not Required.



GLOSSARY OF PESTICIDE/PCB DATA

- This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- This flag applies to a compound that has been confirmed by GC/MS.

S

Report Date: 07/11/03 08:46

Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Client: TNUHANFORD F03-006 H2250 Work Order: 11343606001 Page: 1 RFW Batch Number: 0305L537 BLK BS B171B8 B171B8 B171B8 BLK B17122 Cust ID: 03LE0686-MB1 03LE0686-MB1 003 MS 003 MSD 003 RFW#: 001 Sample SOIL SOIL SOIL SOIL SOIL Information Matrix: SOIL 1.00 1.00 1000 1.00 1.00 1.00 D.F.: mg/Kg mg/Kg mg/Kg mq/Kq Units: mg/Kg mg/Kg ` % 70 왕 79 % 79 왕 77 D ş 36 ક p-Terphenyl 12.0 U 82 왕 12.6 U 68 કૃ 69 14000 U Diesel Range Organics 12.6 U 12.6 U 12.6 U 12.0 U 12.0 U 24000 Kerosene



U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

0305	L5	37			FIEL.	D PERS	ONNE	EL: C	OMPLE	ETE ONL	Y SHAD	DED A	AREA	S		ري-	<u> </u>	5	В		Ċ	D_		OSVILLET	ABORATO	DRY INC
lient TN	H-N	anfor	<u>}</u>	F03	3-00	0			Refrige	rator#		Ī							2				-			↓_
st. Final Pro	. Samp	ling Date .							#/Type	Container	Liquid Solid	laa	ian			1109	lae.	100	lan		la	kaa	lae		laa	<u></u>
roject #									Volume	 •	Liquid	100	- 34				Ţ									1
ionville Labe	ratory	Project Ma	inager ∕∖\	Org	ette-	goa	LAP	<u>ر</u>	Preserv		Solid	<u>صا</u>	124		-	1	<u>60</u>	90	60 		-	<u> </u>	<u>-</u>	1	40	7
Date Rec'd				TAT					ANALY REQUE	SES		A0/0		ANIC Best Best Best Best Best Best Best Best	£ £	A Cochais Sivens	古地	2 5 \$ \$ \$	Metal ON	AG Z	¥ 5	+ 2	702,	ا ا ا ا ا ا ا ا ا ا ا	2000	22
				Pate Due		_ 	7	ıtrix	ļ	<u> </u>	1	-8	111		1	<u> ₹⟨0,</u>	Llonv		borate	ory Us			1	1 4	<u> </u>	1+0
IATRIX ODES: - Soil E - Sedimerit O - Solid	Lab ID		Cliet	nt ID/Desc	ription		Che (2C osen ✓)	Matrix,	Date Collected	Time Collected	0624 H	0675 X			Ohese	06084	OHBEX	McTO		ICRG	TOGGR	エルいんこ	INDRE	INSAL	I CR6
L - Sludge V - Water	~~	BIT					MS	MSD	5	5.27.6	1110	V		W/M	Łk\		9\v3		X		×	X	X	X	7	
- Air	0037 0007	BIT					<u> </u>	^	1		31115	1		r Cr			X	×	1						 	
Dutter.	ω <u>λ</u> ω3	B17								T	1250)	71	1/12	(m	X	(1)la	-	1					1	X	X
Liquids - EP/TCLP																										
Leachate /I - Wipe							 			<u> </u>	 	ļ	-	<u> </u>		<u> </u>			ļ			-	ļ	<u> </u>	<u> </u>	
- Other - Fish										 	 		 -				}				├		 -	-	-	┼
		_ 					+-			 -	├	-	-	-	-	├	 -		┼─	 	╁	 		 -	-	+
:			-,' -,				+-	 	<u> </u>	 		 	 	 	 	-	-	 	_			 	 -	 	 	\vdash
·																										
pecial instructi Run M	ions:	SAF	=	F03 -	000			DATE/	REVISIO	ns: , Per (Client	Add	mile	6 +	GM-an	ı te	s - 0	143	F		Lionvi	lie Lab	oratory	Use O	nly	
MLT (0 :	RCRA	+ Sb, Be	, B;,	B, Cu.	N:	146,				2									- 1) - Ha		ed <u>V</u> livered		1) Pa 2)	mper Res Presen ackage Unbrok ackage	Or Gen on	uter N Oute
norm () = 3	EC - C1	, f, No _{3 ,} (VOz, f	0,4,504	, 1MH3	n,19h,	TCMO			 4 5 6 				- <u>-</u> -					- 3) - C ₁	Received Rec		3000 r N	3) 4)	Presen	on Sa (1) or (en on	ample or N
Relinquished by		Received by		Date	Time		Relinqui		L	Received by ()	RIGIN	PAL	Tlr	ne		repanci pies La					Preserv (Y) o	r N		OC/Rec	riple Re	ec't
260-k	5	intri (Ŋ	<u>53.0</u>	3 11:35		#0°	908 481			WRI					Recor				Hecer olding	ved With FixQes (Y) o		Co	ooler	۰ (ب 2.3	

FH-Central Plateau Project	CHAIN OF CUST	ODY/S	AMPLE	ANALY	'SIS	REQUEST	•	F03	-006-107	Page 1	of 1
Collector Johansen/Pope/Pfister	Company Contact LC Hulstrom	Telepho 373-3	ne No.	· · · · · ·	_	Project Coordin		Price Code	8N	Data Tu	rnaround
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling	Sampling Location 216-A-10 (C3247) 62.5-65 f	ì				SAF No. F03-006		Air Quality		45]	Days
Ice Chest No. ERC 01-030	Field Logbook No. HNF-N-3361		COA 117504ES	10		Method of Ship Federal Expre					_
Shipped To 1NO 5-37-03 EBERLINE SERVICES (Formerly TMA) PLCS & P.	Offsite Property No.	SR	1071	92_		Bill of Lading/	Air Bill	No. N	A- '		
POSSIBLE SAMPLE HAZARDS/REMARKS BITTED; B PROSPECTION PROPERTY BOTTON B	a tail l	Cool 4C	Cool 4C	Nome	Cool 4	C Cool 4C	Cool 4	C Cool 4C	None	None	None
Special Handling and/or Storage (B)	Type of Container	aG 1	aG ∫	aG	aG 1	aG	aG 1	aG 1	aG 1	aG	2G/ 0/1
N/A	No. of Container(s) Volume	60mL	125m	60mL	60ml	. 125ml	60mi		60mL	60ml.	60mL
SAMPLE ANALYSIS	v viame	See item (1) in Special Instructions. Add VOA 8266 F	Special Specia	See item (3) in Special Instructions.	Chromiu Hex - 71		NO2/NO 353.2		See item (5) in Special Instructions	(Special	Tritium - H3
<u> </u>	ple Date Sample Time							ologija Solitika ologija (180		ALTERNATION I	
2 - 100	7-03 1030	X	X	X	<u> </u>			 X.	/ 	105 5 27 -	2
	7-03 1110	Х	X	X	>	X	\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	(X		ттъд	1-03
	ign/Print Names		SPE	CIAL INSTR	UCTIO	ons -					Matrix *
Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Received By/Remo	ed By/Stored in By/Stored in Ed By/Sto	Pate/Time Pate/Time Pate/Time Pate/Time Pate/Time	7 report 7 (1) / (2) / (2) / (3) / (3) / (3) / (3) / (3) / (3) / (3) / (3) / (3) / (3) / (3) / (3) / (3) / (3) / (3) / (3) / (4) / (3) / (4) / (5) / (6) / (Alcohols, Glycol Semi-VOA - 827 Diesel Range - CP Metals - 601 Metals - 6010A cury - 7471 - (C) IC Anions - 300.) - 9045; Total C Gamma Spectros cana Spectros Lestogio Plutoni Dechnetium-99.	and diese a, & Kete OA (TCL WTPH-E OA (Supertra V) O (Chlori Cyanide - Loopy (Co Cos (Cos Strontium Strontium	esium 137, Coball C	from WIII mol, Dieth POA (Add- nge - WII arium, Ca comy, Bery c, Nitrite, G, Europt G, Radium Esotopic T	PH-D analysis. yl ether, Ethylene On) (2-Butoxyeth PH-G drisum, Chromium Bismuth, Bo Phosphate, Sulfate mn-152, Europium -228, Tm-126; To	glycol, Methan anol, Tributyl n, Lead, Selenia oron, Copper, 1 e); Ammonia - -154, Europius otal Uranium; 2 232); Carbon-	nol) phosphate); nun, Silver); Nickel); 350.3; pH nn-155); Americium	S-Seil SC*Sodement SC*Solde W = Water O-Oil A-Adr DU-Drum Liquide T-Tinane W-Wijer L-Liquid V-Vegetation X-Day
FINAL SAMPLE Disposal Method DISPOSITION				Dispos	sed By	- 7 V - C	۴ (ÇÝ		Date/Time	

FH-Central Platea	ıu Project	C	HAIN OF CUST	ODY/S	AMPLE	ANALYS	SIS F	REQUEST		F0:	3-006-133	Page 1	of 1
Collector Johansen/Pope/Pfister		Comp	any Contact Hulstrom	Telepho 373-3	ne No.		I	Project Coordin RENT, SJ		Price Code	8N	Data Tur	naround
Project Designation 200-PW-2/200-PW-4 OU - B	orehole Soil Sampling	Samp	ling Location 5-B-12 (C3246); (0.5')					6AF No. 603-006		Air Quality	у 🗆	45 I	Days
Ice Chest No. EVEC	-02.402	Field HN	Logbook No. IF-N-3361		COA 117504ES	10	N	Method of Ships Federal Expres					
Shipped To EBERTINE SERVICES (For	RAP PE	Offsit	e Property No.	030	228	3		Bill of Lading/	ir Bill	No. <u>S</u>	EE	OSPC	
Possible sample Haza	REDSTREMARKS Redion-time B171N	a	Preservation	Cool 4C	Cool 4C								
		8	Type of Container	аG	aG								
Special Handling and/or S	otorage		No. of Container(s)	ì	1								
ر د	70/1-		Volume	60mL	60mL								
	SAMPLE ANALY	sis		Pesticides - 808 i	Chloro- Herbicides - EPA8151			7.0					
Samula Via	Matrix *	Sample Date	Sample Time	gg-rogiggyrene in				TICIO:					
Sample No. B171B7		5-29-0		X	×			137109	- Anna -				
:													
				ļ									ļ
		<u> </u>			 	1					<u></u>		<u> </u>
CHAIN OF POSSESSIO		Sign/Pri		l		CIAL INSTRU					_1	\ 7n	Matrix *
Relinguished By/Removed From R. Cac. R. G. h. M.	Date/Time 1916	Received By/Str	3728: 5	29-03 ate/Time 1	F15	The laboratory is to The laboratory is to						alvsis. 75.	SO-Solid SI-Sludge W - Water O-Oil
Relinquished By/Removed From 1 3728 // Relinquished By/Removed From 1 2 400 // Respectively.	Date/Time 1000	Received By/Ste	Plant. Fahlbe	ate/Time / -> L· 3 ate/Time	03								A=Air DS=Drum Solids DL=Drum Liquids T=Tisme Wi=Wipe L=Liquid
Relinquished By/Removed From	Date/Time Date/Time	Received By/St	17 Midd 6.4.	ate/Time	<u>a</u> 5								V=Vegetation X=Other
LABORATORY Received E SECTION	hy			7	itle	- · · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·				Date/Time	
FINAL SAMPLE Disposal M DISPOSITION	Acthod					Dispose	d By					Date/Time	

FH-Central Platea	u Project	C	HAIN OF CUST	ODY/S	AMP	LE ANALY	YSIS	RE	QUEST		F0	3-006-134	Page 1	of 1
Collector Johansen/Pope/Pfister		Comp	any Contact Hulstrom	Telephor 373-39	ne No.			Proj	ect Coordin NT, SJ	setor Ì	Price Code	8N	Data Tur	
Project Designation 200-PW-2/200-PW-4 OU - Bo	prehole Soil Sampling		ling Location i-B-12 (C3246); (14.5'-17	")				SAF F03-		1	Air Qualit	у 🗆	45 1	Days
Ice Chest No.	02.402	Field HN	Logbook No. F-N-3361		COA 11750	14ES10			hod of Ship deral Expre				. <u>.</u>	
Shipped To TWD 5-	29-03 Recro	Offsit	e Property No.	930	_ 2	78		Bill	of Lading/	Air Bill N	o. <u> </u>	SEE	OSPC	<u>-</u>
POSSIBLE SAMPLE HAZAI	rds/remarks R -X +il B171N9	L	Preservation	Cool 4C	Cool		Non		None aG	None				
Special Handling and/or S	• •		Type of Container	1		1	1		1 2	3/2			 	
_	140		No. of Container(s) Volume	60mL	1250		60m	ıL	60A	60mL		-		
	SAMPLE ANAL	YSIS	<u> </u>	See item (1) in Special Instructions.	See item Speci Instruct	ial 353,2; Oil &	See item Speci Instruct	إلى أما	Stee item (4) in Oppozial Instructions	Tritium - H	3	Ties	D !	
Sample No.	Matrix *	Sample Date												
B171B8	SOIL	5-29-0	1250	X	+	X - X	<u> </u>	_		<u> </u>	-	יורוש	9	
					-									
CHAIN OF POSSESSIO	N.	Sign/Pris	nt Names			SPECIAL INSTR	DICTIO	ONS						Matrix *
Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From	Date/Time 15th Date/Time 15th 5-29-0; Date/Time 100 Date/Time 100 Date/Time Date/Time	Received By/Sto Received By/Sto Received By/Sto Received By/Sto Received By/Sto	wed in ER 50 pred in D P. Fahll pred in D D D D D D D D D D D D D D D D D D	Pate/Time	55	**The laboratory is **The laboratory is **The laboratory is (1) Alcohols, Glyco (2) Semi-VOA - 82 TPH-Diesel Range - (3) Gamma Spector Gamma Spec - Add 241; Isotopic Platon (4) Technetium-92; 129; Mickel 63; Neg	s to repor ols, & Ke 170A (TC WTPH- oscopy (Ces our [Ces ium; Isot Strontium	tones - de tones - L); Ser D; TPF Geoium-13 topic U m-20,0	kerosene and o 8015 (1-Buta mi-VOA 82 H-Gasoline Ra -137, Cobate 4 Radium-22 Innoism	diesel range not, Diethyl 70A (Add-C nge - WTPI 6, Europius 6, Radium-	compounds from tether, Ethylen On) (2-Butoxye H-G m-152, Europia 228, Tin 126);	e glycol, Methan ethanol, Tributyl mi-134, Europidi Total Uranium;	nol) phosphate); n=153 1:	S-Soil SE-Sodiment SO-Soid SI-Shadge W = Water O-Out DSydings Salde- T-Triste WI-Wipe L-Liquid V=Vegetation X-Other
LABORATORY Received By SECTION	·				<u>-</u>	Thinn	osed By						Date/Time	
FINAL SAMPLE Disposal M DISPOSITION	ethod					nzbo	useu by				·		Later 1 DNC	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

LIENT: TNU Handow

irchase Order/Project:

DATE: 5.31.03

AF#/ SOW# / Release #:

F03-004

M3051537

aboratory SDG #:

				ENT SECTION	
1.	Custody seals on coolers or shipping container intact, signed and dated?	∭Yes	. □No	D N/A	☐ see Comment
2.	Outside of coolers or shipping containers are free from damage?	YYes	□ No	DNA	Sec Comment
١.	Airbill # recorded?	ty yes	D No	□ N/A	🗅 see Comment
.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	t√ Yes	□ No	DNA	□ set Comment
5 .	Sample containers are intact?	Σ/Yes	D No	D N/A	D see Commen
.	Custody seals on sample containers intact, signed and dated?	V Yes	D No	D N/A	D see Commen
	All samples on coc received?	Yes	D No	DWA	D see Commer
	All sample label information matches coc?	Yes	D No	D N/A·	ace Comme
).	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	Yes	CI No	□ N/A	🗅 see Commer
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bonles not within policy. See reverse side for policy)	D/Y.es	D No	O N/A	, 🛭 sec Commet
11.	Where applicable, bar code labels are affixed to coc?	D Yes	۵No	DNA	D see Comme
12.	coc signed and dated?	Yes Yes	DNo	DNA	D see Comme
3.	coc will be faxed or emailed to client?	E Yes-	□ No	DWA	D see Comme
4.	Project Manager/Client contacted concerning discrepancies? (name/date)	D Yes	. □ No	MINA	. D see Comme

Cooler # / temp (°C) and Comments:

ERC 01-030/03°C

Laboratory Sample Custodian:

Laboratory Project Manager:

D. Smian

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

LIENT: TNU Handow

rchase Order/Project:

DATE: 6403

SOW#/Release#: FO3-006

aboratory SDG #:

000000				
	EXPLAINED II	THE COMM	ENT SECTION	
Custody seals on coolers or shipping container intact, signed and dated?	CXY es	. □No	D N/A	☐ see Comment #
Outside of coolers or shipping containers are free from damage?	Yes	D No	D N/A	D set Comment #
Airbill # recorded?	TVes :	□ No	□ N/A	□ see Comment #
All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	Yes	□ No	DNA	D see Comment #
Sample containers are intact?	Peres	D No	D N/A	D see Comment #
Custody seals on sample containers intact, signed and dated?	To des	□ No	DINA	D acc Comment #
All samples on coc received?	Bas	□ No	DNA	see Comment
All sample label information matches coc?	O Yes	□ N o	□ N/A·	o see Comment
Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	Ū Yes	□ No	DAVA	☐ see Comment
Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)) Yes	D No	D N/A	, 🗅 see Comment
Where applicable, bar code labels are affixed to coc?	D Yes	D No	AINCE	D see Comment
coc signed and dated?	Yes	□ No	D N/A	🗅 see Comment
coc will be faxed or emailed to client?	d Yes-	□ No	DNA	Set Comment
Project Manager/Client contacted concerning discrepancies? (name/date)	□ Yes	D No	DINA	D see Comment
	Custody seals on coolers or shipping container intact, signed and dated? Outside of coolers or shipping containers are free from damage? Airbill # recorded? All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) Sample containers are intact? Custody seals on sample containers intact, signed and dated? All samples on coc received? All sample label information matches coc? Laboratory QC samples designated on coc? (QC stickers placed on bottles?) Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) Where applicable, bar code labels are affixed to coc? coc signed and dated? coc will be faxed or emailed to client? Project Manager/Client contacted	Custody seals on coolers or shipping container intact, signed and dated? Outside of coolers or shipping containers are free from damage? Airbill # recorded? All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) Sample containers are intact? Custody seals on sample containers intact, signed and dated? All samples on coc received? All sample label information matches coc? Laboratory QC samples designated on coc? (QC stickers placed on bottles?) Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) Where applicable, bar code labels are affixed to coc? coc signed and dated? Coc will be faxed or emailed to client? Project Manager/Client contacted	Custody seals on coolers or shipping container intact, signed and dated?. Outside of coolers or shipping containers are free from damage? Airbill # recorded? All expected paperwork received (coc and other client specific: historical data, alpha/bets or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) Sample containers are intact? Custody seals on sample containers intact, signed and dated? All samples on coc received? All sample label information matches coc? Laboratory QC samples designated on coc? (QC stickers placed on bottles?) Shipment meets LvL1 Sample Acceptance Policy? (identify all bonles not within policy. See reverse side for policy) Where applicable, bar code labels are affixed to coc? coc signed and dated? Project Manager/Client contacted	Container intact, signed and dated? Outside of coolers or shipping containers are free from damage? Airbill # recorded? All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) Sample containers are intact? Custody seals on sample containers intact, signed and dated? All samples on coc received? All sample label information matches coc? Laboratory QC samples designated on coc? (QC stickers placed on bottles?) Shipment meets LvLl Sample Acceptance Policy? (identify all bontles not within policy. See reverse side for policy) Where applicable, bar code labels are affixed to coc? coc signed and dated? Project Manager/Client contacted

Cooler # / temp (°C) and Comments:

ERC-02-402/0.2"

Laboratory Sample Custodian:

Laboratory Project Manager:

neingla

DATE RECEIVED: 06/04/03 LVL LOT # :0305L537

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
<u> </u>						
B17122	001	s	03LE0715	05/27/03	06/10/03	06/11/03
B171B8	003	S	03LE0715	05/29/03	06/10/03	06/11/03
B171B8	003 MS	S	03LE0715	05/29/03	06/10/03	06/11/03
B171B8	003 MSD	S	03LE0715	05/29/03	06/10/03	06/11/03
LAB QC:						
BLK	MB1	s	03LE0715	N/A	06/10/03	06/11/03
BLK	MB1 BS	S	03LE0715	N/A	06/10/03	06/11/03



par 3/11/2



Analytical Report

Client: TNU HANFORD F03-006

LVL#: 0305L537

SDG/SAF#: H2250/F03-006

W.O.#: 11343-606-001-9999-00 Date Received: 05-31-03;06-04-03

GC SCAN

The set of samples consisted of two (2) soil samples collected on 05-27,29-03.

The samples and their associated QC samples were extracted on 06-10-03 and analyzed on 06-11-03 according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures. The extraction procedure was based on method 3580A (waste dilution -1 g into 5 mL water) and the extracts were analyzed based on method 8015B for Methanol, Ethyl Ether, and 1-Butanol.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

- 1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- 2. All required holding times for extraction and analysis have been met.
- 3. The method blank was below the reporting limits for all target compounds.
- 4. Surrogates are not currently employed in the methodology.
- 5. All blank spike recoveries were within acceptance criteria.
- 6. Two (2) of six (6) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
- 7. All initial calibrations associated with this data set were within acceptance criteria.
- 8. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

r:\group\data\gcsc\05L-537.doc

07-11-0°

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 0366 246. John Luch. Batch: 0307 L 537 Parameter: 06CSC Initiator: 7/11/07 Samples: MS, ~s9 Matrix: Date: TNU Method: sw846/MCAVW/CLP/ Prep Batch: Client: 0325071 1. Reason for SDR _ Sampler Error on C-O-C a. COC Discrepancy __ Tech Profile Error __ Client Request __ Transcription Error __ Wrong Test Code __ Other _____ b. General Discrepancy __ Container Broken __ Wrong Sample Pulled __ Preservation Wrong __ Missing Sample/Extract __ Label ID's Illegible __ Hold Time Exceeded __ Received Past Hold __ Improper Bottle Type Not Amenable to Analysis Note: Verified by [Log-In] or [Prep Group] (circle)...signature/date: c. Problem (Include all relevant specific results; attach data if necessary) ETMI ETAL decreased in moderno @ 44% +46% Limit 50% 2. Known or Probable Causes(s) matrix effect. 3. Discussion and Proposed Action Other Description: __ Re-loa Neverte. Bicale spike incommol __ Entire Batch Following Samples: _____ No hotsin sametes @ 7 & Reporting Re-leach __ Re-extract Re-digest - , ~ · T · Revise EDD Change Test Code to Place On/Take Off Hold (circle) 4. Project Manager Instructions...signature/date: _____ Concur with Proposed Action Disagree with Proposed Action; See Instruction Include in Case Narrative Client Contacted: Date/Person Add Cancel 1~71.62 Other Explanation: 5. Final Action...signature/date: ___ _ Verified re-[log][leach][extract][digest][analysis] (circle) Included in Case Narrative Hard Copy COC Revised Electronic COC Revised EDD Corrections Completed When Final Action has been recorded, forward original to QA Specialist for distribution and filing. $^{-1}$ Route Distribution of Completed SDR Route Distribution of Completed SDR Metals: Beegle X Initiator X Lab General Manager: M. Taylor Inorganic: Perrone X Project Mgr: Stone/Johnson/Haslett GC/LC: Kiger MS: Rychlak/Layman X Technical Mgr. Wesson/Daniels Log-in: Melnic X QA (file) __ Data Management: Feldman Admin: Soos

Other:

Sample Prep: Beegle/Kiger



GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

- Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I = Interference.
- Indicates an interference on one analytical column only. Result is reported from remaining analytical column.

ABBREVIATIONS

- Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA = Not Applicable.
- **DF** = Dilution Factor.
- NR = Not Required.



GLOSSARY OF PESTICIDE/PCB DATA

- This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- This flag applies to a compound that has been confirmed by GC/MS.

Lionville Laboratory, Inc.

GC SCAN

Report Date: 07/11/03 10:05

	Cust ID:	B17122	B171B8	B171B8		B171B8	BLK	BLK BS
Sample Information	RFW#: Matrix: D.F.: Units:	001 SOIL 1.00 mg/kg	003 SOIL 1.00 mg/kg	003 MS SOIL 1.00 mg/kg		003 MSD SOIL 1.00 mg/kg	03LE0715-MB1 SOIL 1.00 mg/kg	03LE0715-MB1 SOIL 1.00 mg/kg
			1======f	1=========	fl==	.======fl	f	l=====fl
Methanol		28 U	_	94	%	119 %	25 U	96 %
Ethyl Ether		28 U	28 U	44 *	ક	46 * %	25 U	54 %
1-Butanol		28 U	28 U	94	8	92 %	25 U	91 %

Mary"/r

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

ionville Labor	atory U	lse Only	Cus	stody	y Tra	ınsf	er l	Rec	ord/l	_ab	Wo	rk	Re	qu	es	t Pa	age_	of		<u>-</u>	T		V	1	1
0305	L5	37		FI	ELD PEF	rsonni	EL: C	OMPLE	ETE ONL	Y SHAD	ED A	REA	S		G	T	5	В		C	D		NAMEL	AHORATO	RYING.
Client TN	u·H	anford	J F	03-0	Ma.			Refrige	rator#									2				-4			
Est. Final Pro	i. Samp	ling Date		·	<u> </u>			#/Type	Container	Liquid		100	 								<u> </u>				
Project #		1343-	606-04	01-99	19-00						llag				1109	مما	lag	lag		1Cq	-ba	امدا		امم	<u>-t</u>
	4, 4					_	-	Volume	•	Liquid	 	1 2-6			4 W									Leb:	-
Project Conta Lionville Labo	ratory	Project Ma	nager <u>W</u>	Urtt	e god	har	<u> </u>	Presen	ratives	Solid	الما					<u> </u>	।६	<u></u>		<u>60</u>	<u>60</u>	<u>50</u>			-11
oc Spei							<u> </u>	rieser		<u> </u>		ORG	ANIC		25.2	مد		INO		7	+ 8	X	. {	क्षे व	Ž
Date Rec'd 5	330	03/6 ⁴	0 ³ Date I	Due	7-4-6 6-30	-63		ANALY REQUE		->	VOA 8250	199 199 199 199 199 199 199 199 199 199	Pest/ PCB	Herb	Alcehals Glycels Kylone	Pest	(1) See 3					NOZ,	Ec Am.	200	\$5
MATRIX						Ma	etrix							+		Lionvi	ille La	borato	ry Us	e Only		+		_	
CODES: S - Soil SE - Sediment	Lab ID		Client 1D/	Description	1	Ch (OC osen V)	Matrix	Date Collected	Time Collected	0624 H	0625 X			0kac	H 8090	OHBEX	McTO		ICE 6	1066R	エめのエ	INDRU	TOGGE	LCR6
SO - Solid SL - Sludge W - Water		-				MS	MSD			 	┿			.k\		0 ?>́3	_	X		×		X	X	нн	
O - Oil	001		122			- *	 X-	S	5.27.63		X		WIN		~//	7 VO				^	X	^	^		
DS - Drum	ω Σ.		187				├	 	5290		├		1/12:	<u> </u>	V	1/10			<u> </u>		├─			X	X
DL - Drum Liquids	<u>&</u>	P/A	1 <u>B8</u>					 ^	5.29.03	1520	7	A	1/12:	5,44 <u>}</u>]		1/00	hu.	 		 	 	+	<u> </u>	1	
L - EP/TCLP Leachate		_	· 				-	 	-	 -	┼-	-		-						 	 				
WI - Wipe X - Other							┼-		 	}	 				 		-	-	 		_		 -	 	
F - Fish	 -	 					╁─	├	 -	 -	+		 	<u> </u>	 		<u> </u>	<u> </u>		<u> </u>	 -				
	 	 				\dashv	+	 	 	 	 			-	 		-	-	-	 	 	 	 -	 	
	 	 					╁	 	 		 	-								 		-	 	 	-
	<u> </u>	 				-+-	+-	 -	 		+	-			 		 	 		 -	<u> </u>	-		 	
Special instruct	ions.	<u> </u>		03 -001	<u> </u>		DATE	/REVISIO	NS:				'	<u> </u>	·	Ĺ			<u> </u>	Lionvi	i ah	oratory	Usa O	i niv	
Run M			t Fi to not t , Bi, B,		01) 3°	•	6-5		1. Per () 2 3	lient	Add	mie	· <u> </u>	<u>Gna n</u>	ı te	s - 0	03	1) Ha	mples Shippe	were; ad V	or_	Tar 1) Pa 2)	nper Res Preser ickage Unbrok	sistant Se of Or Or or or	iter N Outer
znoegn⊕ :-	ec - C(, F, NO _{3 ,}	NOL, PO ₄ ,	504, IN	143 r , 149	H'ICNLO			4 5									- 3) - Co	Receiv	nt or C	300d	3) 4}	Preser Unbro	on Sa (T) or (en on	imple r N
Relinguished	, 1	Receive	 		———	Relingu	ished		6			T	=_	<u> </u>					Sampl roperty	Preserv			· /1	or or or	
by		by	_ D	ate T	îme	ь	·		by O	RIGIN	AT	Tle	ne	Sam	repanci ples La	bels ar	nd	E)	Rocci	(Y) o ved Wit			on Say	ofple Re	ec't
Stooler	\S	inde:C	นท 53	31-03 11	35				RC	WRI	TE	4	_]	COC	Recor	d? Y	or A		olding 1	Tiyo qş			ooler		
40)E,	1,5	^ v ∧\	th 64							*****			$\neg \neg$	1		રે ગ્ર	→	074		(Y) 0		Te	mp. <u> </u>	3.3	_ °C
XXX	<u></u>	~. } \	رجور بيد		يا ليمم	 .—						1		Щ_		<u>~~</u>	<u>ت ب</u>	$\mathbf{u}\mathbf{c}$	1 70	<u> </u>		A - 5		7 - i	ىــــــــــــــــــــــــــــــــــــ

FH-Central Plateau Project	CHAIN OF CUST	'ODV/S/	AMPI.E	ANAL	/SIS R	FOUEST		F03	-006-107	Page 1	of 1
Collector Johansen/Pope/Pfister	Company Contact LC Hulstrom	Telephone 373-392	e No.	11111101	Pı	roject Coordin	****	rice Code	8N	Data Tui	naround
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling	Sampling Location 216-A-10 (C3247) 62.5-65 ft	t				AF No.)3-006	A	ir Quality		45]	Days
Ice Chest No. ERC 01-030	Field Logbook No. HNF-N-3361		COA 117504ES	10	М	ethod of Ships Federal Expres					
Shipped To 1NO 5-27-03 EBERLINE SERVICES (Formerly TMA) PLCCU & 4	Offsite Property No.	SR 1	071	92_	B	ill of Lading/	Air Bill No	Ŋ	A -	· •	<u> </u>
POSSIBLE SAMPLE HAZARDS/REMARKS \$133; B		Cool 4C	Cool 4C	None aG	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None aG	None	None
Special Handling and/or Storage	No. of Container(s)	1	1	1	1	1	1	1	1	1	81
	Volume	60mL	125ml	60mL	60mL	125ml	60mL,	60mL	60mL	60mL	60mL
SAMPLE ANALYSIS		See item (1) in Special Instructions. Add Vorth 8268 A	See item [2) in Special Instructions	See item (3) in Special Instructions	Chromium Hex - 7196	See item (4) in Special Instructions.	NO2/NO3 - 353,2	Oit & Grease - 413.1	Sec item (5) in Special Instructions	(Special	Tritium - H3
	ple Date Sample Time			: A							
B17416 PA 5.2 8-93 SOIL 5	7-03 1030	X	-/×-	X	×	 X	<u> </u>	X-	<u> </u>	10 527-	1
	7-03 1110	X	X	×	X	X	- <i>×</i> -	X		myse	\ -
							<u> </u>				
Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Date/Time Recei Relinquished By/Removed From Recei Relinquished By/Removed From Date/Time Recei Recei Relinquished By/Removed From Recei Relinquished By/Removed From Recei Recei Relinquished By/Removed From Recei Recei Recei Recei Recei Recei Recei Recei Recei Recei	yed By/Stored in Display of the property of t	ate/lime /o	report (1) / (2) S TPH (3) Is ICP (4) I (Soil (5) - 24); (6) - 24); (7) - 24)	Alcohols, Glycolomi-VOA - 82: Diesel Range - CP Metals - 60: Metals - 60: Metals - 60: Aury - 7471 - (CC Anions - 300) - 9045; Total Gamma Spectrolate	to achieve a and diesel r ls, & Ketone 70A (TCL); WTPH-D; 1 10A (Supertrace V) .0 {Chloride Cyanide - 90 scopy {Cesi cos {Gesium imm; Isotoph Strontium-8	detection limit or ange compounds as = 8015 {1-Butan Semi-VOA 827 (PH-Gasoline Ran race) {Araenic, B. Add-On) {Antim t, Fluoride, Nitrate 110 um-137, Cotsit-5 -134, REdium-220	from WTPH- nol, Diethyl c 10A (Add-On nge - WTPH- arium, Cadm ony, Berylliu n, Nitrite, Pho U, Europhum 5, Radium-22	D analysis. ther, Ethylene) {2-Butoxyeth G ium, Chromium m, Bismuth, Bo sphate, Sulfate 132, Europium 8, Tun-126}; To	glycol, Methan nanol, Tributyl a, Lead, Selenin oron, Copper, 1 e); Ammonia - -154, Europhu otal Oranium; 1	nol) phosphate}; am, Silver}; Nickel}; 350.3; pH n=155}; Americian	Matrix * S-Soli SE-Sodiment SO-Solid SE-Sodiment SO-Solid SH-Shadge W = Water O-OR A-Ahr DB-Drown Solida DI-Drown Liquid T-Times VI-Wipe L-Liquid V-Vegataries X-Solor X-Solor
SECTION FINAL SAMPLE Disposal Method			<u> </u>	Dispo	sed By		1	<u>Q^</u>		Date/Time	

FH-Central Platea	u Project	CI	HAIN OF CUST	ODY/S	AMPLE	ANALY	SIS	REQUEST		F03	-006-133	Page 1	of <u>1</u>
Collector Johansen/Pope/Pfister	<u></u>	Compa	any Contact Hulstrom	Telepho 373-3	ne No.			Project Coordin TRENT, SJ	ator	Price Code	8N	Data Tur	naround
Project Designation 200-PW-2/200-PW-4 OU - Bo	orehole Soil Sampling		ing Location -B-12 (C3246); (0.5')		-			SAF No. F03-006		Air Quality		45 I	Days
Ice Chest No. EVEC	-02-402	Field I	Logbook No. F-N-3361		COA 117504ES	0		Method of Ship Federal Expres					
Shipped To RECO		Offsite	Property No.	030	278	, 		Bill of Lading/	Lir Bill N	ia. <u>S</u>	e e	SPC	
Possible sample Haza	rdsvremarks Padioantina B17188		Preservation	Cool 4C	Cool 4C								
		5	Type of Container	aG	aG								
Special Handling and/or S	olucionage		No. of Container(s)	1	1								
20	017		Volume	60mL	60mL					-			
	SAMPLE ANALYSI	ıs		Pesticides - 8081	Chloro- Herbicides - EPA8151			-					
							_	TIED:					
Sample No.	Matrix *	Sample Date	Sample Time										
B171B7	SOIL 5	5-29-0	3 1115	X	 X			צטורוכן		 	<u> </u>		
					-				···-	 			
										<u> </u>	<u> </u>	<u> </u>	24.00
Relinquished By/Removed From Relinquished By/Removed From	Date/Time 1515 1100.539-03 Date/Time 1515 5.29:53	Riccived By/Sto	red in FRC Di Reference 5 Red in Di 3728 3	ate/Time 1	F15		o achier	MS - detection limit of both kerosene and d			· WTPH-D aga	dysis. 75-	Matrix * Social Secondary Social Secondary W = Water O-Oil A-Air
Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From	Libery 6-3-03 Date Time	Received By/Sto	PO To Fa Nibe	ate/Time	<u>a3</u>								DS-Drum Solids DL-Drum Liquids T-Times WI-Wipe L-Liquid V-Vegenation X-Other
Relinquished By/Removed From	Date/Time	Received By/Sto		ate/Time	102 -7								gg and the second
LABORATORY Received By SECTION	,			ī	itle				· · · -		Γ	Date/Time	L
FINAL SAMPLE Disposal M. DISPOSITION	ethod					Dispose	ed By					Date/Time	

FH-Central Plateau Project	CI	HAIN OF CUST	ODY/S	AMPL	E ANALY	SIS	REQUES	T	1	F03-006-134	Page 1	of <u>1</u>
Collector Johansen/Pope/Pfister		iny Contact Hulstrom	Telephor				Project Coord TRENT, SJ	linator	Price Coo	ie 8N	Data Tu	rnaround
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		ing Location -B-12 (C3246); (14.5'-17	")				SAF No. F03-006		Air Qua	lity 🗌	45	Days
ce Chest No. ERC 0 2-402		Logbook No. F-N-3361		COA 1175041	ES10		Method of Sh Federal Exp			·· -		
Shipped To 1705-29-63 EBERTING SERVICES (Formerly TMA) RECCO	Offsite	Property No.	930	_ 2 7	78		Bill of Ladin	/Air Bill	No.	SEE	05PC	-
Possible sample Hazards/Remarks Potentiily Rakon-till		Preservation	Cool 4C	Cool 4C	Cool 4C	None	: None	Non				
TieTo BI71N9		Type of Container	aG	aG €	aG a	аG	aG	12/3G	1		 	
Special Handling and/or Storage		No. of Container(s)	1	1	1	1	1 a	1				
C6014 =		Volume	60mL	125mL	. 60mL	60m)	606	60m	L	_		
SAMPLE ANALYSIS			See item (1) in Special Instructions.	Sec item (2) Special Instruction	353.2; Oil &	Specia	3) in Sbe item (4) is special one (4) itstructions		НЗ	T'4	(A)	
Sample No. Matrix * Samp	le Date	Sample Time								Tiet		
	29-0	3 1250	X	X	Α	Z				BITH	09	
				 				 				
				-				╅┈				
Relinquished By/Removed From Date/Time 1515 Received Relinquished By/Removed From Date/Time 1515 Received Relinquished By/Removed From Date/Time 1515 Received Relinquished By/Removed From Date/Time 1515 Received Relinquished By/Removed From Date/Time 1515 Received Relinquished By/Removed From Date/Time 1515 Received Relinquished By/Removed From Date/Time 1515 Received Received Relinquished By/Removed From Date/Time 1515 Received Received Relinquished By/Removed From Date/Time 1515 Received Relinquished By/Removed From Date/Time 1515 Received Relinquished By/Removed From Date/Time 1515 Received Relinquished By/Removed From Date/Time 1515 Received Relinquished By/Removed From Date/Time 1515 Received Relinquished By/Removed From Date/Time 1515 Received Relinquished By/Removed From Date/Time 1515 Received Relinquished By/Removed From Date/Time 1515 Received Relinquished By/Removed From Date/Time 1515 Received Relinquished By/Removed From Date/Time 1515 Received Relinquished By/Removed From Date/Time 1515 Received Relinquished By/Removed From Date/Time 1515 Received Relinquished By/Removed Relinquished Relinqui	ed By/Stor	ed in ER Di	Ate/Time 5	515 ".) Alcohols, Glycol) Semi-VOA - 827	to sobies to report is, & Ket 70A (TCI	n a detection limi both kerosene an ones - 8015 (1-Br .); Semi-VOA (d diesel ran stanol, Diet 1270A (Ad	ge compound: hyl ether, Ethy i-On) (2-Buto	s from WTPH-D and viene glycol, Methar oxyethanol, Tributyl	iol}	Matrix * S=Soil SE=Sodiment SO=Solid SI=Studge W = Water
Relinquished By/Removed From Date/Time 1600 Receive B 572 8 4-3-02 Relinquished By/Removed From FRO Date/Time 1000 Receive	ed By/Stor	red in P. Fahl	ate/Time	03	amma Spec - Add-	on (Cesion (Cesion)	m-134, Radium-	1-60, Europ 226, Radius	i an-152, Ear t p-228, Tin-12	spium-154, Europium 6}; Total Uranium; rium-232); Carbon-	Americium	DSPUTIES SOLITORY T-TESOS WI-Wipe
Religional Hold By/Removed From Pater Time Received	ed By/Sto	mion 6.40	ate/Time	12	29 ; Nickel 63; Nep	tunium-2	37	•	·	,, -		L=Liquid V=Vegetation X=Other
LABORATORY Received By SECTION			Ti	itle						1	Date/Time	<u> </u>
FINAL SAMPLE Disposal Method DISPOSITION			····		Dispo	sed By					Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

IENT: THU Handow

rchase Order/Project:

DATE: 5.31.03

F#/SOW#/Release#: FD3-004

boratory SDG #:

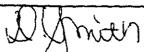
3051537 OTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION Custody seals on coolers or shipping D No DNA See Comment # container intact, signed and dated? Outside of coolers or shipping containers are ZVYes . D No DNA D see Comment # free from damage? Airbill # recorded? D No DNA D sec Comment # All expected paperwork received (coc and D No DINA ☐ see Comment # other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) Sample containers are intact? Ŋ Yes D No DNA D see Comment # Custody seals on sample containers intact, D No. DNA ☐ see Comment # signed and dated? All samples on coc received? ₩ Yes D No DNA D see Comment # 🗘 Yes D No D N/A see Comment # All sample label information matches coc? Laboratory QC samples designated on coc? D No D N/A D see Comment # (QC stickers placed on bottles?) 10. Shipment meets LvLI Sample Acceptance D/Y.es DNo DINA D sec Comment # Policy? (identify all bottles not within policy. See reverse side for policy) 11. Where applicable, bar code labels are D Yes D No DNA ☐ see Comment # affixed to coc? V Yes D No DNA D see Comment # 12. coc signed and dated? 13. coc will be faxed or emailed to client? □ No D N/A D sec Comment # 14. Project Manager/Client contacted IN N/A O Yes D No D see Comment # concerning discrepancies? (name/date)

Cooler # / temp (°C) and Comments:

ERC 01-030 /0.3'C

Laboratory Sample Custodian:

Laboratory Project Manager:



LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

rchase Order/Project:

DATE: 6403

F# SOW# / Release #: FO3 -006

boratory SDG #:

03051537

TE:	ALL ENTRIES MARKED "NO" MUST BE I			ENT SECTION	1
1.	Custody seals on coolers or shipping container intact, signed and dated?) Yes	D No	O NA	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	Yes	O No	O N/A	See Comment #
3.	Airbill # recorded?	Wes	O No	□ N/A	□ see Comment#
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	T) Yes	D No	DNA	🖸 see Comment #
5.	Sample containers are intact?	Qu'es	□ No	D N/A	D see Comment #
6.	Custody seals on sample containers intact, signed and dated?	To des	D No	DWA	D see Comment #
7.	All samples on coc received?	`Dyes	□ No	AMO	see Comment #
8.	All sample label information matches coc?	Dres	□ No	□ N/A·	see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	D Yes	□ No	DARIA	See Comment #
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	-Yes	D No	D N/A	D sec Comment #
11.	Where applicable, bar code labels are affixed to coc?	D Yes	□ No	AWE	D see Comment
12.	coc signed and dated?	y es	D No	□ N/A	D see Comment
13.	coc will be faxed or emailed to client?	E Yes-	D No	□ N/A	□ see Comment i
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	□ Yes	DNo	BNA	D see Comment

Cooler # / temp (°C) and Comments: ERE-02-402 | 0.2

Laboratory Sample Custodian:

Laboratory Project Manager:

DATE RECEIVED: 06/04/03

LVL LOT # :0305L537

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
						
B17122	001	s	03LE0709	05/27/03	06/09/03	06/10/03
B171B8	003	S	03LE0709	05/29/03	06/09/03	06/10/03
B171B8	003 MS	S	03LE0709	05/29/03	06/09/03	06/10/03
B171B8	003 MSD	S	03LE0709	05/29/03	06/09/03	06/10/03
LAB QC:				4		
BLK	MB1	s	03LE0709	N/A	06/09/03	06/10/03
BLK	MB1 BS	S	03LE0709	N/A	06/09/03	06/10/03



J8 1-13



Analytical Report

Client: TNU HANFORD F03-006

LVL#: 0305L537

SDG/SAF#: H2250/F03-006

W.O.#: 11343-606-001-9999-00 Date Received: 05-31-03:06-04-03

GC SCAN-Ethylene Glycol

The set of samples consisted of two (2) soil samples collected on 05-27,29-03.

The samples and their associated QC samples were prepped on 06-09-03 and analyzed on 06-10-03 03 according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures. The extraction procedure was based on method 3580A (waste dilution -1 g into 5 mL water) and the extracts were analyzed based on method 8015B for Ethylene Glycol.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

- 1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- 2. All required holding times for extraction and analysis have been met.
- 3. The method blank was below the reporting limits for all target compounds.
- 4. Surrogates are not currently employed in the methodology.
- 5. The blank spike recovery was within acceptance criteria.
- 6. All matrix spike recoveries were within acceptance criteria.
- 7. All initial calibrations were within acceptance criteria.
- 8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
- 9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

r:\group\data\gese\05L-537a.doc

1-11-03 Date

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.



GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

- U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I = Interference.
- Indicates an interference on one analytical column only. Result is reported from remaining analytical column.

ABBREVIATIONS

- BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA = Not Applicable.
- **DF** = Dilution Factor.
- NR = Not Required.



GLOSSARY OF PESTICIDE/PCB DATA

- This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- This flag applies to a compound that has been confirmed by GC/MS.

Lionville Laboratory, Inc.

Nonhalogenated Volatiles by GC, Method 8015 Report Date: 07/11/03 09:40

Client: TNUHANFORD F03-006 H2250 Work Order: 11343606001 Page: 1 RFW Batch Number: 0305L537

	Cust ID:	B17122	B171B8	B171B8	B171B8	BLK	BLK BS
Sample	RFW#:	001	003	003 MS	003 MSD	03LE0709-MB1	03LE0709-MB1
Information	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
		======f1==	======fl==	======fl=	=======f	l=====f]	
Ethylene Glycol		28.0 U	23.5 U	83 %	107 %	25.0 U	98 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Lionville Labor	ratory L	Jse Only	Cı	ustod	ly Trar	nsfe	er I	Rec	ord/l	Lab '	Wo	rk	Re	qu	es	t Pa	age_	<u>1</u> of	<u> </u>	-	T	31	V	I	1
0.309	<u>5L5</u>	37		1	RELD PERS	SONNE	EL: C	OMPL	ETE ONL	Y SHAD	ED A	REA	S		Cz	エ	5	В		<u>c</u>	D		OSSILLETA	BORATOR	VILC
Client TN	W- H	bolos	9	F03-	006			Retrige	erator#									2				4			
Est. Final Pro	oi. Samt	olina Date)					#/Type	Container	Liquid		100					-	 			<u> </u>				
Project #	1	1343-	606-	001-9	919-00					Solid	lag				1109	إعطا	log	lag		109	lag	lae		100	=
Dealors Contr							_	Volum	e	Liquid Solid	<u> </u>	125	-		# (g)		(0						-	60	
Lionville Lab	oratory	Project M	lanager (Willet	te god	nder		Proser	vatives	Source	صا					9	-	<u>د</u> 0		00	<u> </u>	<u></u>			=1
ac Spe					1		<u></u>	riesci				ORG	ANIC		SSS	مد		INC	RG	1	+ 8		.5	4	1
Date Rec'd ≤	5.31·	03/62	ц.0 ³	ite Due	7-4-03	23		REQUI	rses Ested		0,0A 0,4%	1999	Pest/ PCB	Herb	A lochais Siyceis Katalis	Rest	\$ 250 S	Metal	₹	¥ €	ئ ر و و	202	10 E	256 256	\$5
MATRIX		<u> </u>					itrix		T					↓				borato	ory Us	se Onl	y	+			
CODES: S - Soll SE - Sediment SQ - Solid	Lab ID		Client	1D/Descripti	on	Che (r	aC osen ⊬)	Matrix	Date Collected	Time Collected	0624 H	0615 X			0GGGC	0608#	OHBEX	Mero		ICR'S	10GGR	エんぴんこ	INDRUB	LOGGA	I CR6
SL - Słudge W - Water		21	7.05	 ,		MS	MSD	3	C 38 .:	1110	X		whe	ιkΥ	_	~)Va		X		×	×	X	X		\vdash
Q - Oil A - Air	001		1120			 	^-	1	5 27 6	B 1115	-		YU(- 30	X	×	<u> </u>							$\neg \uparrow$
DS - Drum Solids	003 003		71BE							1250	<u> </u>	11	1/12	<u></u>	X	1 Ju		7						X	X
DL - Drum Liquids	<u> </u>	2.7	100	- 2		1			<u> </u>	1,400	-		712		7	7,04			_	 		 		7	
L - EP/TCLP Leachate			-	· · · · · · · · · · · · · · · · · · ·				<u> </u>	1																
Wi-Wipe X-Other F-Fish	<u> </u>																								
1 - 1 (6)									1												-				
			· ·																						
	<u> </u>	<u> </u>						<u> </u>						<u> </u>											
Special Instruc	tions:	SAF	: 박	F03-00	06		DATE	REVISIO	ins: 1. <u>Per</u> (Chait.	411		1. +	ن مید	. 4	1	٥٦			Lionvi	lle Lab	oratory	Use On	ıly	
Run M Mit 0 :				F03 -00 H we al	_				2									- 1) - Ha		ed 🔨 livered		1) Pr 2)	mper Resident Present ackage Unbroke	or Ou	iter Ni Outer
ZNOBEN ① :-	14 - C	i, f, No,,	NO2, PO	14,504, 2	WH3W, IPH,	ICMO			. 4									1 .		int oi	_		ackage (Present	on Sa	ımple
									5									- 3) - C	Receivondition	ved in (GOOD N N	.م	`	(Y) or	N
									. 6									4)	Sampl	les		S	Unbroke ample Y	n or	
Relinquishe by	d	Receive	ed	Date	Time '	Relinqui by		_	Received by O	RIGIN	219	Th	ne			es Beh		Pi	openy	Preser	ved Vr N		OC/Reco		
	1	7 1	.,,,,			±04	.50	—	_	-1		<u> </u>	\dashv	coc	Recor	ibels ar d? Y	-		Received	ved Wit	hin			y) or	
2000	- 12	∽ ዸ ለ\		231.03			AST	-	K	WELLI	LE	-		NOT		•		•		$(\mathbf{y})_{i}$		Te	ooler emp. 	1.3	_ ℃
THOUC X		$r \lambda L w$	MED 16	<u> भ.०३ (</u>)	702				-			<u> </u>		L	# 3	<u> </u>	35	074	53	<u>738</u>	<u> 0</u>	<u> </u>	723	a -i	
		· , j																	华	74	P 70	013	733	1/0	ر. ٢٠٠٧

FH-Central Plateau	u Project	IAIN OF CUST	ODY/S	AMPLI	E ANALY	YSIS	REQUEST	r	F03	-006-107	Page 1	of <u>1</u>	
Collector Johansen/Pope/Pfister		Compa	ny Contact Fulstrom	Telepho 373-3	ne No.			Project Coordi		Price Code	8N	Data Tu	naround
Project Designation 200-PW-2/200-PW-4 OU - Bo	orehole Soil Sampling		ing Location -A-10 (C3247) 62.5-65 fi	<u> </u>		•		SAF No. F03-006		Air Quality		45]	Days
Ice Chest No.	01-03	Field I	Field Logbook No. COA Method of Shipment HNF-N-3361 117504ES10 Federal Express										
Shipped To 10055-77-	03 Recra	Offsite	Property No.	SR	1071	92_		Bill of Lading	/Air Bill	No. N	A- '		
POSSIBLE SAMPLE HAZAL	DISPRIMARKS SAT	5-37 Preservation	Cool 4C	Cool 4C	Nome	Coci 4	Cool 4C	Cool	IC Cool 4C	None	None	None	
170010104100 Special Handling and/or St	UTILTO: E	on HOW:	Type of Container	aG	≇G	aG	зG		₩G		aG	≱G	2
N/A	sor ago		No. of Container(s)	l 60mL	1 125mL	1 60mL	60ml	1 125mil	60m	L 60mL	60mL	60mL Y	60mL
<u> </u>			Volume	See item (1) is			Chromin	um. See item (4) in	N02/N	D3 - Oil & Gresse -	See item (5) in	69	Tritium - H3
	SAMPLE ANAL	YSIS		Special lastructions.	Special	Special Instructions.	Hex - 7	196 Special Instructions	353.	2 413.1	Special Instructions	retructions.	
				VOA 82601				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				1	.
Sample No.	Matrix *	Sample Date	Sample Time			200						ر در از در از در از در از در از در از در از در از در از در از در از در از در از در از در از در از در در از در د در میراند در از در از در از در از در از در از در از در از در از در از در از در از در از در از در از در از در ا	
B17116 P 5.2 8-93	SOIL	5-27-03		X	-/×	$+\times$	\vdash	 	<u> </u>		/	10 5 2 7 -	
80183	2011	5-27-0		X	11 X	×		XXX	×	\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		m750	
हान हान	5611	5-27-03	3 1110	X	<u> </u>	X	<u> </u>	\ \ \ \ \		X X		11.17.00	
		· <u>-</u>											
icounderstock his contradit a this "	TH Date/Time	Sign/Prin	red in RCD	ate/Time			to achiev			Cive for Carbon-14.	** The laborat	tory is to	Matrix *
Relinquished By/Removed From	Date Time 14			27-03	1921 .					hyl ether, Ethylene	elycol Methan	rol t	SE=Sediment SO=Selid Si=Sintgs
FIGOR ROCA	um 5 2/0	5 1B	3/28	1415	(2)	Semi-VOA - 82	70A (TCI	L); Semi-VOA 8. D; TPH-Gasoline R	270A (Ad	d-On) (2-Butoxyeti	hanol, Tributyi	phosphate)	W = Water O-Oil
Relinquished By/Remoyled From	5.30:03	Received By/Sto			(3)	ICP Metals - 60	10A (Sup	ertrace) (Arsenic, I	Barium, C	admium, Chromius yllium, Bismuth, B			A-Ale DS-Deum Solids DL-Drum Liquids
Relinquished By/Removed From	Pate/Time C	C Received By/Sto	red.la D	ale/Time	Me	rcury - 7471 - (C	(V)		· -	, Phosphate, Sulfat		•	T-Tieses Wi-Wipt
Relinquished By/Removed From	Wilere 5.30 mg	Received By/Sto	ned in D	ete/Time	(2)	il) - 9045; Total <u>Gamma Spectro</u>	scopy (C	esium 137, Coball	-60, Europ	ium-132, Europian	⊬154; Eur opiu	, (CCT-II	L-Liquid V=Vegetation X-Outer \A
Relinquished By/Removed From	31-03 / 11:3° Date/Time	Received By/Sak		- 0 3 / 1 3 Pate/Time	74 741	Lectopie Pluten Technetium-99:	Strontius	opic Uranium	Isotopic '	n-228, Tin-126); T Thorium (Thorium			75.3°
LABORATORY Received B							cin's	13) + (4)	our Stere	1 Nent 1	Date/Time	
FINAL SAMPLE Disposal M DISPOSITION	fethod	<u>, </u>				U Dispo	sed By			(0 '	Date/Time	

FH-Central	AIN OF CUST	ODY/S	AMPL	LE A	NALY	SIS	REQUEST		F03	-006-133	Page 1	of 1			
Collector Johansen/Pope/Pfist	£r	(Company LC Hul	y Contact Istrom	Telepho 373-3		-	···		Project Coordin	ator	Price Code	8N	Data Tur	naround
Project Designation	4 OU - Borehole Soil Samplin		Sampling	g Location -12 (C3246); (0.5')						SAF No. F03-006		Air Quality	<u> </u>	45 I	Days
Ice Chest No.	PC-02.40	ا ا	Field Log HNF-N	gbook No. N-3361		COA 117504	ES10			Method of Ship Federal Expre					
Shipped To K	FCRA PE		Offsite Pa	roperty No.	030	22	8_			Bill of Lading/	Vir Bill I	ia.	ee c	OSPC	
Possible sample	E HAZARDSVEMARKS LE Radioa tiu TO B17	4		Preservation	Cool 4C	Cool 40	2								
		1118	<u> </u>	Type of Container	aG.	aG									· -
Special Handling				No. of Container(s)	1	1	+						† 	<u> </u>	
	CO014ª			Volume	60mL	60mL							†		
	SAMPLE AN	ALYSIS			Pesticides - 8081	Chloro- Herbicides EPA815	5 -		•						
										TILD:					
Sample No.	Matrix *	Sample		Sample Time											E 7.35
B171B7	SOIL	<u> 5-29</u>	1-03	1115	X	 X				137108	<u> </u>		<u> </u>		
<u></u>		+				 							 	 	
CHAIN OF PO	PECECION	Cia	/Print N	James .	_		75014	L Diogram	CTIO	NC .	_		<u> </u>		Matrix *
Pringwish A Warmoye		55 Received	By/Stored	In FRC Da	ite/Time	<u>इंड</u> ा "	- The le		schie	7115 # a detection limit c both kerosene and					T
Relinguished By/Remove	Party Date/Time	Received			29-03 te/Time 1	<u></u>			Jiopon	. Com acroscite and	peser rang	c compounds no	***********************************	5	SO-Solid SI-Sludge
P.Cea.	6. hlb 5. 29.03		3	3728 5	٠ 2 9 .	03									W = Water O=Oil
Relinquished By/Remove		Received	By/Stored	In 2. T. Fa Hlbe	te/Time /	000									A=Air DS=Drum Solids DL=Drum Liquids
Relinquished By/Remove	d From ER Chate/Time/0 Richalden 6-3	Received			ate/Time					÷					T=Tissus W!=Wips L=Liquid
Relinquished By/Rentove	From Date/Time	Received	By/Stofes		nte/Time 03/09	25									V=Vegetation X=Other
Relinquished By/Remove		Received	By/Stored	In Da	ate/Time										200 mm
LABORATORY SECTION	Received By				Т	itle								Date/Time	1
	Disposal Method					<u>-</u>		Dispose	ed By	<u> </u>				Date/Time	_

VMS Gamma Spectroscopy Report generated 2-JUN-2003 10:18:42

: DKA100: [GAMMA.SCUSR.ARCHIVE] SMP_RCF11059_DET1_50GRAMPILLBOX60 : B171N8 Project Number : 216-B-12 Configuration

Sample ID RFC Number Sample Quantity Sample Type : B171N8 : RCF11059 SAF Number

: 3.10000E+01 GRAMS

Sample Date

1 . 4 - _

Decay time

Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.11 Energy cal. time: 14-FEB-2002 16:05:03 Effic. cal. time: 4-APR-2002 08:08:29. Detector name: BEGE 3820 Counting geometry: 50Gram pill box

Detector name 3.00000

Peak Sensitivity : 3.00000 Efficiency Type : EMPIRICA Energy tolerance: 2.00000

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	1.820E+01	6.398E+00	3.788E+00	3.759E-01	4.805
CD-109 Pazy	1:128E+016 6/2/09	1.286E+0 0	-> 1.554E+00	1.882E-01	1.112

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pC1/GRAM)	MDA error	Act/MDA
CO-60	1.624E-01		2.710£-01	6,255E-01	6.059E-02	0.260
AG-108m	-1,930E-01		2.036E-01	3.099E-01	3.796E-02	-0.623
CS-137	1.540E-01		1.983E-01	4.356E-01	4.9718-02	0.354
EU-152	-7.433E-02		1.644E-01	2.812E-01	4.479E-02	-0.264
EU-154	-3.233E-02		1.138E-01	2.001E-01	2.908E-02	-0.162
EU-155	1.980E-01	+	1.404E-01	2.510E-01	2.935E-02	0.752
RA-226	7.103E-01		1.860E+00	3 642E+00	3.251E-01	0.195
AC-228	6.053E-01		1.461B+00	3.034E+00	3.263E-01	0.200
TH-234	7.7888-01		9.947E-01	1.828E+00	7.698E-01	0.426
บ-235	5.32 0E -02		1.056E-01	2.097E-01	2.035E-02	0.254
AM-241	3.036E-02		1.019E-01	1.919E-01	2.674E-02	0.158

Approval Date: 6 / 2 / 3 Approved by:

אכב

TIMOTHY J. SNIDER

FH-Central Plateau	u Project	CI	HAIN OF CUST	ODY/S	AMPL	E ANAL	YSIS F	REQUEST		F	03-006-134	Page 1	of <u>1</u>
Collector Johansen/Pope/Pfister			nny Contact Hulstrom	Telepho 373-3	ne No. 928			Project Coordi TRENT, SJ	nator	Price Code	8N		rnaround
Project Designation 200-PW-2/200-PW-4 OU - Bo	rehole Soil Sampling		ing Location -B-12 (C3246); (14.5'-17	ຶ່ງ				SAF No. F03-006		Air Qual	ity 🗌	45 1	Days
ce Chest No.	02-402	Field I	Logbook No. F-N-3361	, i	COA 117504E	ES10	N	Method of Ship Federal Expre		·			
Shipped To 1705-	29-03 Recra	Offsite	Offsite Property No. 930 -278 Bill of Lading/Air Bill N						INO. SEE OSPC				
POSSIBLE SAMPLE HAZAR	RDS/REMARKS		Preservation	Cool 4C	Cool 4C	Cool 4C Cool 4C None		None	None				
	TieTo B171N9 pecial Handling and/or Storage				aG	aG	aG	aG	ր∕* ⁶				
	140		No. of Container(s)	1	1 125-1	1 60-1	60mL	1 00	60mL	-		ļ	
			Volume	60mL	125mL		l	50m			,		
	SAMPLE ANALY		See item (1) in Special Instructions.	Special Special Instruction	353.2; Oil &	Special	in See item (4) in (2) Special (4) Instructions.	Tritiam - I	B 				
					· ·						Ties	b :	
Sample No.	Matrix *	Sample Date	Sample Time	.,	1 7						12.00	ا ا	
B171B8	SOIL	5-29-0	13 120	_X_	-X	X					יורוש	19	
CHAIN OF POSSESSIO	Date/Time 1519	Sign/Prin		ate/Time [ECIAL INSTR	- to ashieva	a detection limit o			340-	5-29.03	Matrix *
Mændisenjonsneu	DND-11-00	REGE		ate/Time 1			•		_	•	from WTPH-D and	•	SE=Sediment SO=Solid
Relinquished By/Removed From R:Fn W/4	Date/Time 1517	Received By/Sto	3728 5·2	4.05	(2)		70A (TCL)	; Semi-VOA 82	70A (Add-	On) (2-Butox	ene glycol, Methar yethanol, Tributyl		N = Mater O=Oti
Relinquished By/Removed From		Received By/Ston	red in 20 Fahl	ate/Time	1000	Germana Spectro	scopy (Ges	rium 137; Cobalt-	50, Caropi u	a r 152, Euro p	rium-154, Europiur -; Total Uranium;	II-133 };	DS Tomas Solida
Relinquished By/Removed From E	Ro-Date/Time 1001	Received By/Sta	red III D	ate/Time	(4)	1; Isotopic Plutes) Technetium-99; 9; Nickel 63; Neg	ium: Isotop Strontium	ic Uranium 20,00 - Tetal Sri			un-232), Carbon-		T-Types WI-Wips L-Liquid
Relinquished By/Removed From	Dete/Time -4031.09.25	Received By/Std	ped in Drivery 6-40	ate/Time ろんらる	6	•		-					V=Vegetation X=Other
Relinquished By/Removed From	Date/Time	Received By/Sto	red in D	ate/Time									
LABORATORY Received By SECTION	,			Т	itle						1	Date/Time	
FINAL SAMPLE Disposal Me	thod					Dispo	osed By					Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

LIENT: TNU Handow

irchase Order/Project:

DATE: 5-31.03

AF# / SOW# / Release #:

F03-004

aboratory SDG #:

3051537 OTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION Custody seals on coolers or shipping Q/Yes D No DNA D see Comment # container intact, signed and dated? Outside of coolers or shipping containers are ZγYes □ No DNA D see Comment # free from damage? Airbill # recorded? D No D N/A See Comment # 4. All expected paperwork received (coc and □ No D N/A other client specific: historical data. U see Comment # alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) 5. Sample containers are intact? Q Yes D No D N/A □ see Comment # ù Yes Custody seals on sample containers intact, D No. DNA Disce Comment # signed and dated? All samples on coc received? .₩ Yes D No D N/A D see Comment # Ų Yes D No D NA .. D see Comment # All sample label information matches coc? Laboratory QC samples designated on coc? ₽ Yes D No D N/A D see Comment # (QC stickers placed on bottles?) 10. Shipment meets LvLl Sample Acceptance D/Yes D N/A D No D see Comment # Policy? (identify all bottles not within policy. See reverse side for policy) 11. Where applicable, bar code labels are D Yes D No D N/A Disce Comment # affixed to coc? V Yes D No DWA 12. coc signed and dated? D see Comment # MYes-13. coc will be faxed or emailed to client? □ No DNA ☐ sec Comment # 14. Project Manager/Client contacted PINA D Yes □ No D see Comment # concerning discrepancies? (name/date)

Cooler # / temp (°C) and Comments:

ERC 01-030/03'C

Laboratory Sample Custodian:

Laboratory Project Manager:

Dyman

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

LIENT: TNU Handow

rchase Order/Project:

DATE: 6-4-03

17# SOW#/Release #: F03-006

aboratory SDG #:

OTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION Custody seals on coolers or shipping DNo DNA D see Comment # container intact, signed and dated? Outside of coolers or shipping containers are DNo Q∕Yes see Comment # free from damage? Airbill # recorded? 3. D No D N/A ☐ see Comment # All expected paperwork received (coc and □ No DNA other client specific: historical data. ☐ see Comment # alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) Sample containers are intact? □ No D N/A ☐ see Comment # Custody seals on sample containers intact, D No. DNA See Comment # signed and dated? All samples on coc received? QYes D No DNA Disce Comment # □ see Comment # D No D N/A All sample label information matches coc? Laboratory QC samples designated on coc? □ Yes □ No V/M/Z set Comment # (QC stickers placed on bottles?) 10. Shipment meets LvLl Sample Acceptance D No D NA . Diset Comment # Policy? (identify all bottles not within policy. See reverse side for policy) 11. Where applicable, bar code labels are D Yes □ No V/KQ 🖺 see Comment # affixed to coc? **□**Y es D No DNA D see Comment # 12. coc signed and dated? E Yes. 13. coc will be faxed or emailed to client? □ No DNA D sec Comment # 14. Project Manager/Client contacted D Yes □ No D see Comment # concerning discrepancies? (name/date)

Cooler # / temp (°C) and Comments:

ERC-02-402 0.2"

Laboratory Sample Custodian:

Laboratory Project Manager:

Mingles



DATE RECEIVED: 06/04/03

LVL LOT # :0305L537

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B17122						
SILVER, TOTAL	001	S	03L0324	05/27/03	06/09/03	06/13/03
SILVER, TOTAL	001 REP	s	03L0324	05/27/03	06/09/03	06/13/03
SILVER, TOTAL	001 MS	s	03L0324	05/27/03	06/09/03	06/13/03
ARSENIC, TOTAL	001	S	03L0324	05/27/03	06/09/03	06/13/03
ARSENIC, TOTAL	001 REP	s	03L0324	05/27/03	06/09/03	06/13/03
ARSENIC, TOTAL	001 MS	S	03L0324	05/27/03	06/09/03	06/13/03
BORON, TOTAL	001	S	03L0324	05/27/03	06/09/03	06/13/03
BORON, TOTAL	001 REP	S	03L0324	05/27/03	06/09/03	06/13/03
BORON, TOTAL	001 MS	S	03L0324	05/27/03	06/09/03	06/13/03
BARIUM, TOTAL	001	S	03L0324	05/27/03	06/09/03	06/13/03
BARIUM, TOTAL	001 REP	S	03L0324	05/27/03	06/09/03	06/13/03
BARIUM, TOTAL	001 MS	S	03L0324	05/27/03	06/09/03	06/13/03
BERYLLIUM, TOTAL	001	S	03L0324	05/27/03	06/09/03	06/13/03
BERYLLIUM, TOTAL	001 REP	S	03L0324	05/27/03	06/09/03	06/13/03
BERYLLIUM, TOTAL	001 MS	S	03L0324	05/27/03	06/09/03	06/13/03
BISMUTH, TOTAL	001	S	03L0324	05/27/03	06/09/03	06/13/03
BISMUTH, TOTAL REP	001 REP	S	03L0324	05/27/03	06/09/03	06/13/03
BISMUTH, TOTAL SPIKE	001 MS	S	03L0324	05/27/03	06/09/03	06/13/03
CADMIUM, TOTAL	001	S	03L0324	05/27/03	06/09/03	06/13/03
CADMIUM, TOTAL	001 REP	S	03L0324	05/27/03	06/09/03	06/13/03
CADMIUM, TOTAL	001 MS	S	03L0324	05/27/03	06/09/03	06/13/03
CHROMIUM, TOTAL	001	S	03L0324	05/27/03	06/09/03	06/13/03
CHROMIUM, TOTAL	001 REP	S	03L0324	05/27/03	06/09/03	06/13/03
CHROMIUM, TOTAL	001 MS	S	03L0324	05/27/03	06/09/03	06/13/03
COPPER, TOTAL	001	S	03L0324	05/27/03	06/09/03	06/13/03
COPPER, TOTAL	001 REP	S	03L0324	05/27/03	06/09/03	06/13/03
COPPER, TOTAL	001 MS	S	03L0324	05/27/03	06/09/03	06/13/03
MERCURY, TOTAL	001	S	03C0143	05/27/03	06/12/03	06/12/03
NICKEL, TOTAL	001	S	03L0324	05/27/03	06/09/03	06/13/03
NICKEL, TOTAL	001 REP	S	03L0324	05/27/03	06/09/03	06/13/03
NICKEL, TOTAL	001 MS	S	03L0324	05/27/03	06/09/03	06/13/03
LEAD, TOTAL	001	S	03L0324	05/27/03	06/09/03	06/13/03
LEAD, TOTAL	001 REP	S	03L0324	05/27/03	06/09/03	06/13/03
LEAD, TOTAL	001 MS	S	03L0324	05/27/03	06/09/03	06/13/03
ANTIMONY, TOTAL	001	S	03L0324	05/27/03	06/09/03	06/13/03

DATE RECEIVED: 06/04/03 LVL LOT # :0305L537

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ANTIMONY, TOTAL	001 REP	s	03L0324	05/27/03	06/09/03	06/13/03
ANTIMONY, TOTAL	001 MS	S	03L0321	05/27/03	06/09/03	06/13/03
SELENIUM, TOTAL	001	s	03L0324	05/27/03	06/09/03	06/13/03
SELENIUM, TOTAL	001 REP	S	03L0324	05/27/03	06/09/03	06/13/03
SELENIUM, TOTAL	001 MS	S	03L0324	05/27/03	06/09/03	06/13/03
B171B8						
SILVER, TOTAL	003	s	03L0344	05/29/03	06/17/03	06/18/03
ARSENIC, TOTAL	003	S	03L0344	05/29/03	06/17/03	06/18/03
BORON, TOTAL	003	S	03L0344	05/29/03	06/17/03	06/18/03
BARIUM, TOTAL	003	S	03L0344	05/29/03	06/17/03	06/18/03
BERYLLIUM, TOTAL	003	S	03L0344	05/29/03	06/17/03	06/18/03
BISMUTH, TOTAL	003	S	03L0344	05/29/03	06/17/03	06/18/03
CADMIUM, TOTAL	003	S	03L0344	05/29/03	06/17/03	06/18/03
CHROMIUM, TOTAL	003	S	03L0344	05/29/03	06/17/03	06/18/03
COPPER, TOTAL	003	S	03L0344	05/29/03	06/17/03	06/18/03
MERCURY, TOTAL	003	S	03C0143	05/29/03	06/12/03	06/12/03
MERCURY, TOTAL	003 REP	S	03C0143	05/29/03	06/12/03	06/12/03
MERCURY, TOTAL	003 MS	S	03C0145	05/29/03	06/13/03	06/13/03
NICKEL, TOTAL	003	S	03L0344	05/29/03	06/17/03	06/18/03
LEAD, TOTAL	003	S	03L0344	05/29/03	06/17/03	06/18/03
ANTIMONY, TOTAL	003	S	03L0344	05/29/03	06/17/03	06/18/03
SELENIUM, TOTAL	003	S	03L0344	05/29/03	06/17/03	06/18/03
AB QC:						
						
SILVER LABORATORY	LC1 BS	S	03L0324	N/A	06/09/03	06/10/03
SILVER, TOTAL	MB1	S	03L0324	N/A	06/09/03	06/10/03
ARSENIC LABORATORY	LC1 BS	s	03L0324	N/A	06/09/03	06/10/03
ARSENIC, TOTAL	MB1	S	03L0324	N/A	06/09/03	06/10/03
BORON LABORATORY	LC1 BS	S	03L0324	N/A	06/09/03	06/10/03
BORON, TOTAL	MB1	S	03L0324	N/A	06/09/03	06/10/03
BARIUM LABORATORY	LC1 BS	S	03L0324	N/A	06/09/03	06/10/03
BARIUM, TOTAL	MB1	S	03L0324	N/A	06/09/03	06/10/03
BERYLLIUM LABORATORY	LC1 BS	S	03L0324	N/A	06/09/03	06/10/03
BERYLLIUM, TOTAL	MB1	S	03L0324	N/A	06/09/03	06/10/03
BISMUTH, LCS	LC1 BS	S	03L0324	N/A	06/09/03	06/10/03

DATE RECEIVED: 06/04/03

LVL LOT # :0305L537

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BISMUTH, TOTAL	MB1	s	03L0324	N/A	06/09/03	06/10/03
CADMIUM LABORATORY	LC1 BS	S	03L0324	n/A	06/09/03	06/10/03
CADMIUM, TOTAL	MB1	S	03L0324	N/A	06/09/03	06/10/03
CHROMIUM LABORATORY	LC1 BS	S	03L0324	N/A	06/09/03	06/10/03
CHROMIUM, TOTAL	MB1	S	03L0324	N/A	06/09/03	06/10/03
COPPER LABORATORY	LC1 BS	S	03L0324	n/A	06/09/03	06/10/03
COPPER, TOTAL	MB1	S	03L0324	N/A	06/09/03	06/10/03
MERCURY LABORATORY	LC1 BS	S	03C0143	n/A	06/12/03	06/12/03
MERCURY, TOTAL	MB1	S	03C0143	N/A	06/12/03	06/12/03
NICKEL LABORATORY	LC1 BS	S	03L0324	N/A	06/09/03	06/10/03
NICKEL, TOTAL	MB1	S	03L0324	N/A	06/09/03	06/10/03
LEAD LABORATORY	LC1 BS	s	03L0324	N/A	06/09/03	06/10/03
LEAD, TOTAL	MB1	s	03L0324	N/A	06/09/03	06/10/03
ANTIMONY LABORATORY	LC1 BS	S	03L0324	N/A	06/09/03	06/10/03
ANTIMONY, TOTAL	MB1	s	03L0324	N/A	06/09/03	06/10/03
SELENIUM LABORATORY	LC1 BS	s	03L0324	N/A	06/09/03	06/10/03
SELENIUM, TOTAL	MB1	s	03L0324	N/A	06/09/03	06/10/03
SILVER LABORATORY	LC1 BS	s	03L0344	N/A	06/17/03	06/18/03
SILVER, TOTAL	MB1	s	03L0344	N/A	06/17/03	06/18/03
ARSENIC LABORATORY	LC1 BS	s	03L0344	N/A	06/17/03	06/18/03
ARSENIC, TOTAL	MB1	S	03L0344	N/A	06/17/03	06/18/03
BORON LABORATORY	LC1 BS	S	03L0344	N/A	06/17/03	06/18/03
BORON, TOTAL	MB1	s	03L0344	N/A	06/17/03	06/18/03
BARIUM LABORATORY	LC1 BS	S	03L0344	N/A	06/17/03	06/18/03
BARIUM, TOTAL	MB1	S	03L0344	N/A	06/17/03	06/18/03
BERYLLIUM LABORATORY	LC1 BS	s	03L0344	N/A	06/17/03	06/18/03
BERYLLIUM, TOTAL	MB1	S	03L0344	N/A	06/17/03	06/18/03
BISMUTH, LCS	LC1 BS	S	03L0344	N/A	06/17/03	06/18/03
BISMUTH, TOTAL	MB1	s	03L0344	N/A	06/17/03	06/18/03
CADMIUM LABORATORY	LC1 BS	S	03L0344	N/A	06/17/03	06/18/03
CADMIUM, TOTAL	MB1	S	03L0344	N/A	06/17/03	06/18/03
CHROMIUM LABORATORY	LC1 BS	S	03L0344	N/A	06/17/03	06/18/03
CHROMIUM, TOTAL	MB1	S	03L0344	N/A	06/17/03	06/18/03
COPPER LABORATORY	LC1 BS	S	03L0344	N/A	06/17/03	06/18/03
COPPER, TOTAL	MB1	S	03L0344	N/A	06/17/03	06/18/03
MERCURY LABORATORY	LC1 BS	S	03C0145	N/A	06/13/03	06/13/03
MERCURY, TOTAL	MB1	S	03C0145	N/A	06/13/03	06/13/03
NICKEL LABORATORY	LC1 BS	S	03L0344	N/A	06/17/03	06/18/03

DATE RECEIVED: 06/04/03

LVL LOT # :0305L537

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
						
NICKEL, TOTAL	MB1	S	03L0344	N/A	06/17/03	06/18/03
LEAD LABORATORY	LC1 BS	s	03L0344	N/A	06/17/03	06/18/03
LEAD, TOTAL	MB1	S	03L0344	N/A	06/17/03	06/18/03
ANTIMONY LABORATORY	LC1 BS	S	03L0344	N/A	06/17/03	06/18/03
ANTIMONY, TOTAL	MB1	S	03L0344	N/A	06/17/03	06/18/03
SELENIUM LABORATORY	LC1 BS	s	03L0344	N/A	06/17/03	06/18/03
SELENIUM, TOTAL	MBl	S	03L0344	N/A	06/17/03	06/18/03



Analytical Report

Client: TNU-HANFORD F03-006

LVL#: 0305L537

SDG/SAF#: H2250/F03-006

W.O.#: 11343-606-001-9999-00 Dates Received: 05-31/06-04-03

METALS CASE NARRATIVE

1. This narrative covers the analyses of 2 soil samples.

- 2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.
- 3. All analyses were performed within the required holding times.
- 4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- 5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
- 6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
- 7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
- 8. All ICP Interference Check Standards were within control limits.
- 9. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of 03L0344-LC1 for Bismuth, which was not spiked. Refer to the Inorganics Laboratory Control Standards Report.
- 10. The matrix spike (MS) recovery for 1 analyte was outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.
- 11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at meaningful concentration level for the following analytes:

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of pages.

		<u>PDS</u>	<u>PDS</u>
<u>Sample ID</u> B17122	Element Antimony	Concentration (ppb) 100	% Recovery 102.1

- 12. The duplicate analyses for 4 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
- 13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
- 14. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

jjw/m05-537

06-27-03

Date



METALS METHOD GLOSSARY

The following med Lot#: 0305L537		ence for the digesti	on and analysis	of samples	contained within this
Leaching Procedu	re:13101311	1312 _Other:			
CLP Metals Di	gestion and Analysis	Methods:ILM	03.0ILM04.	0	
Metals Digestion N	Methods:3005A3 Other: _	3010A30153	020A <u>⊀</u> 3050B	3051 _	_200.7SS17
	M	etals Analysis M	ethods		
		•		EPA	
	SW846	EPA	STD MTD	OSWR	USATHAMA
Aluminum	6010B	200.7			99
Antimony	₹6010B 7041 5	200.7 204.2			<u></u>
Arsenic	76010B 7060A 5	200.7 206.2	3113B		99
Barium	₹6010B	200.7			99
Beryllium	₹6010B	200.7			99
Bismuth	7 6010B¹	200.7 1		1620	
Boron	₹6010B	200.7			99
Cadmium	7 6010B 7131A ⁵	200.7 213.2			99
Calcium	6010B	200.7			99
Chromium	₹6010B 7191 °	200.7218.2			SS17
Cobalt	6010B	200.7			99
Copper	⁷ ∕ 6010B _7211 ⁵	200.7 220.2			99
Iron	6010B				99
Lead	₹ 6010 B 7421 ⁵	200.7239.2	3113B		₉₉
Lithium	6010B7430 ⁴	200.7		1620	99
Magnesium	6010B	200.7			<u> </u>
Manganese	6010B	200.7			99
Mercury	_7470A³∑7471A³	245.1 ² 245.5 ²			<u></u> 99
Molybdenum	6010B	200.7			<u>99</u>
Nickel	<u>1</u> 6010B	200.7	•		99
Potassium	6010B7610 ⁴	200.7258.1 4			99
Rare Earths	6010B ¹	200.7 1		1620	99
Selenium	£6010B _7740 ⁵	200.7270.2	3113B		99
Silicon	6010B ·	200.7		1620	99
Silica	6010 B	200.7		1620	99
Silver	★ 6010B _ 7761 ⁵	200.7272.2			99
Sodium	6010B7770 ⁴	200.7273.1 4			99
Strontium	6010B	200.7			99
Thallium	_6010B7841 ⁵	200.7279.22	200.9		99
Tin	6010B	200.7			99
Titanium	6010B	200.7			<u>99</u>
Uranium	6010B ¹	200.7 '		1620	99
Vanadiu m	6010B	200.7			99
Zinc	6010B	200.7			99
Zirconium	6010B ¹	200.7 ¹		1620	<u>99</u>
Other:	Method	l:		l-Wl-	077

L-W1-033/M-03/01

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- * = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LCS = Laboratory Control Sample.

NC = Not calculated.

ANALYTICAL METAL METHODS

- 1. Not included in the method element list.
- 2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, approximately 0.3 grams of sample is taken to a final volume of 50 mL (including all reagents).
- 3. Flame AA.
- Graphite Furnace AA.

L-WI-033/N-04/98

INORGANICS DATA SUMMARY REPORT 06/25/03

CLIENT: TNUHANFORD F03-006 H2250

WORK ORDER: 113	43-606-001-9999-00
-----------------	--------------------

WORK ORDI	SK. 11345-000-002-9999-				DREADWING	DITIMITAN
		2227 VIII	Decess of	INITMO	REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
*****	二二次日本工作的日本日本日本日本日本日本日本日本日本日本日本日本日本日本日本日本日本日本日本		****		*********	******
-001	B17122	Silver, Total	0.13 u	MG/KG	0.13	1.0
		Arsenic, Total	4.8	MG/KG	0.37	1.0
		Boron, Total	0.83	MG/KG	0.21	1.0
		Barium, Total	18.0	MG/KG	0.02	1.0
		Beryllium, Total	0.04	MG/KG	0.01	1.0
		Bismuth, Total	.0.57 u	MG/KG	0.57	1.0
		Cadmium, Total	0.12	MG/KG	0.04	1.0
		Chromium, Total	8.5	MG/KG	0.11	1.0
		Copper, Total	4.6	MG/KG	0.07	1.0
		Mercury, Total	0.03	MG/KG	0.02	1.0
		Nickel, Total	5.4	MG/KG	0.14	1.0
		Lead, Total	2.8	MG/KG	0.26	1.0
		Antimony, Total	0.35	MG/KG	0.25	1.0
		Selenium, Total	0.47 u	MG/KG	0.47	1.0
- 003	B171B8	Silver, Total	0.11 u	MG/KG	0.11	1.0
		Arsenic, Total	7.3	MG/KG	0.29	1.0
		Boron, Total	1.3	MG/KG	0.17	1.0
		Barium, Total	82.3	MG/KG	0.02	1.0
		Beryllium, Total	0.33	MG/KG	0.009	1.0
		Biemuth, Total	0.45 u	MG/KG	0.45	1.0
		Cadmium, Total	0.08	MG/KG	0.04	1.0
		Chromium, Total	7.1	MG/KG	0.09	1.0
		Copper, Total	14.1	MG/KG	0.05	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	8.5	MG/KG	0.11	1.0
		Lead, Total	6.1	MG/KG	0.20	1.0
		Antimony, Total	0.38	MG/KG	0.19	1.0
		Selenium, Total	0.37 u	MG/KG	0.37	1.0

INORGANICS METHOD BLANK DATA SUMMARY PAGE 06/25/03

CLIENT: TNUHANFORD F03-006 H2250

WORK ORDER: 11343-606-001-9999-00

WORK ORDE	R: 11343-000-001-9999					
					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RBSULT	UNITS	LIMIT	FACTOR
		医加里米氏试验检检验检验 计电话记录 医电话 医红斑	2条票式2至20	*****	*********	
BLANK1	03L0324-MB1	Silver, Total	0.12 u	MG/KG	0.12	1.0
		Arsenic, Total	0.33 u	MG/KG	0.33	1.0
		Boron, Total	0.19 u	MG/KG	0.19	1.0
		Barium, Total	0.03	MG/KG	0.02	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Bismuth, Total	0.51 u	MG/KG	0.51	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	0.12	MG/KG	0.10	1.0
		Copper, Total	0.08	MG/KG	0.06	1.0
		Nickel, Total	0.13 u	MG/KG	0.13	1.0
		Lead, Total	0.24	MG/KG	0.23	1.0
		Antimony, Total	0.27	MG/KG	0.22	1.0
		Selenium, Total	0.42 u	MG/KG	0.42	1.0
			£ .			
BLANK1	03C0143-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0
BLANK1	03L0344-MB1	Silver, Total	0.12 u	MG/KG	0.12	1.0
		Arsenic, Total	0.33 u	MG/KG	0.33	1.0
		Boron, Total	0.23	MG/KG	0.19	1.0
		Barium, Total	0.16	MG/KG	0.02	1.0
		Beryllium, Total	0.02	MG/KG	0.01	1.0
		Bismuth, Total	0.51 u	MG/KG	0.51	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	0.10 u	MG/KG	0.10	1.0
		Copper, Total	0.06 u	MG/KG	0.06	1.0
		Nickel, Total	0.13 u	MG/KG	0.13	1.0
		Lead, Total	0.28	MG/KG	0.23	1.0
		Antimony, Total	0.22 u	MG/KG	0.22	1.0
		Selenium, Total	0. 42 u	MG/KG	0.42	1.0
DY NAMES	AD COLLE ME	Marrows Matal	0.02 u	MG /VC	0.02	1.0
BLANK1	03C0145-MB1	Mercury, Total	0.02 u	MG/ KG	0.02	1.0

INORGANICS ACCURACY REPORT 06/25/03

CLIENT: TNUHANFORD F03-006 H2250 WORK ORDER: 11343-606-001-9999-00

			SPIKED	INITIAL	SPIKED		DILUTION
SAMPLE	SITE ID	ANALYTE	SAMPLE	RESULT	TRUOMA	*RBCOV	FACTOR (SPK)
	=======================================	######################################	*****	*****	*****	======================================	******
-001	B17122	Silver, Total	5.3	0.13u	5.6	94.6	1.0
		Arsenic, Total	212	4.8	225	91.9	1.0
		Boron, Total	104	0.83	113	91.7	1.0
		Barium, Total	232	18.0	225	95.2	1.0
		Beryllium, Total	5.2	0.04	5.6	92.2	1.0
		Bismuth, Total	529	0.57u	563	93.9	1.0
		Cadmium, Total	5.3	0.12	5.6	92.5	1.0
		Chromium, Total	30.1	8.5	22.5	96.0	1.0
		Copper, Total	32.4	4.6	28.2	98.6	1.0
		Nickel, Total	58.4	5.4	56.3	94.1	1.0
		Lead, Total	55.0	2.8	56.3	92.7	1.0
		Antimony, Total	32.7	0.35	56.3	57.5	1.0
		Selenium, Total	197	0.47u	225	87.3	1.0
-003	B171B8	Mercury, Total	0.18	0.02u	0.17	106.5	1.0

INORGANICS PRECISION REPORT 06/25/03

CLIENT: TNUHANFORD F03-006 H2250

WORK C	RDER:	11343-606-001-9999-00
--------	-------	-----------------------

			INITIAL			DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	REPLICATE	RPD	factor (RBP)
-======			*****	*****		
-001REP	B17122	Silver, Total	0.13u	0.13u	ИC	1.0
		Arsenic, Total	4.8	4.3	11.0	1.0
		Boron, Total	0.83	0.67	20.7	1.0
		Barium, Total	18.0	16.3	9.9	1.0
		Beryllium, Total	0.04	0.07	63.0	1.0
		Bismuth, Total	0.57u	. 0,5 6 u	NC	1.0
		Cadmium, Total	0.12	0.06	68.3	1.0
		Chromium, Total	8.5	8.2	3.6	1.0
		Copper, Total	4.6	4.4	4.4	1.0
		Nickel, Total	5.4	4.6	16.0	1.0
		Lead, Total	2.8	2.6	7.4	1.0
		Antimony, Total	0.35	0.26	32.6	1.0
		Selenium, Total	0.47u	0.46u	NC	1.0
-003REP	B171B8	Mercury, Total	0.02u	0.02u	NC	1.0

INORGANICS LABORATORY CONTROL STANDARDS REPORT 06/25/03

CLIENT: TNUHANFORD F03-006 H2250 WORK ORDER: 11343-606-001-9999-00

WORK ORDI	3R: 11343-606-001-9999-	00	antunn	CDTVED		
		2.472 F 10007	SPIKED	SPIKED	INITEO	\$DECOV
SAMPLE	SITE ID	ANALYTE	SAMPLE	AMOUNT	UNITS	*RECOV
LCS1	03L0324-LC1	Silver, LCS	50.8	50.0	•	101.6
		Arsenic, LCS	929	1000	MG/KG	92.9
		Boron, LCS	460	500	MG/KG	91.9
		Barium, LCS	493	500	MG/KG	98.6
		Beryllium, LCS	24.8	25.0	•	99.2
		Bismuth, LCS	472	500	MG/KG	94.5
		Cadmium, LCS	24.7	25.0	MG/KG	98.8
		Chromium, LCS	51.8	50.0	MG/KG	103.6
		Copper, LCS	126	125	MG/KG	101.1
		Nickel, LCS	198	200	MG/KG	99.0
		Lead, LCS	242	250	MG/KG	96. 6
		Antimony, LCS	287	300	MG/KG	95.6
		Selenium, LCS	860	1000	MG/KG	86.0
LCS1	03C0143-LC1	Mercury, LCS	6.4	6.2	MG/KG	103.5
LCS1	03L0344-LC1	Silver, LCS	46.3	50.0	MG/KG	92.6
		Arsenic, LCS	883	1000	MG/KG	88.3
		Boron, LCS	442	500	MG/KG	88.4
		Barium, LCS	479	500	MG/KG	95.8
		Beryllium, LCS	22.7	25.0	MG/KG	90.8
		Bismuth, LCS	-1.	25.0	MG/KG	-5.6
		Cadmium, LCS	23.2	25.0	MG/KG	92.8
		Chromium, LCS	47.8	50.0	MG/KG	95.6
		Copper, LCS	121	125	MG/KG	96.6
		Nickel, LCS	189	200	MG/KG	94.4
		Lead, LCS	232	250	MG/KG	92.8
		Antimony, LCS	272	300	MG/KG	90.7
		Selenium, LCS	843	1000	MG/KG	84.3
LCS1	03C0145-LC1	Mercury, LCS	5.6	6.2	MG/KG	89.6

Lionville Labor	ratory Us	se Only	Cı	usto	•					ord/L					qu	es	t Pa	age_	l_of	<u>t_</u>		C	}	V	L	.]
0.305	L5.	37			FIELD	PERSO	NNE	L: C	OMPLE	TE ONL	Y SHAD	ED A	REA			C-	1	<u>く</u>	B	 ,	C	D	E	ONVILIFEA	ABORATOR	Y INC.
Client TN	u·H	anford	<u> </u>	F03	-006				Refrige	rator#		-							2				-1			r
Est. Final Pro	j. Sampl	ing Date _						[#/Type	Container	Liquid		100					<u> </u>				<u> </u>			 	· .
Project #		343-0	606-	001-	9999.	00					Solid	109			<u> </u>	-1109	109	lag	100		100	lag	lag		امم	 -
Project Conta	ct/Phon	e#		<u> </u>				- -	Volume	•	Liquid		125			L W	-	(-0	4.5	 	4 0		 		60	1
Lionville Labo	oratory F	Project Ma	nager.				<u>Δε`</u>	<u>-</u> -	Preserv	votives	SONO	0					40	40	<u>60</u>		00		(SO)	┌╼┸┤		7
ac Spec					<u>300a</u>	$\overline{}$		=	riascii		J		ORG	ANIC	L	23	١	١.	INC	ORG	7	+ 8		.5	व्य व	Ž
Date Rec'd S	<u> </u>	3/6H	1.03 D	ate Due "	7. 6-	4.03	3		ANALY REQUE		-	A0%		Pest/ PCB	Herb	Alcenals		क्षेत्र	(3) Metal	ટ	¥ €	ئ ئ	NO2 NO3	Ec Ami	200	轻
MATRIX							Mat						1		1		Liony	rille La	borat	ory Us	e Onl	<u>y</u>	1	Γ=		
CODES: S - Soil SE - Sediment SO - Soild	Lab ID		Clien	nt ID/Descri	iption		(9	sen	Matrix	Date Collected	Time Collected	H +2.50	0615 X 0940			04GC	0608H	OHBEX	McTO		1066	1046R	エいいス	INDRUD	INSNI TOGGR	7 CR6
SL - Sludge W - Water	œ1	B17	112				X	X-	S	5.27.03	шо	X	+	W/M	ab.		oVo	+	X		×	X	X	X		
O - Oli A - Air	002	BIT				•			١	5296			-	V Cr	1		X	×								
DS - Drum Solids	2 23	B17								5.29.03			X	1/12	7.0	X	(1/4	(will	7						X	X
DL - Drum Liquids L - EP/TCLP						 -							1													
Leachate WI - Wipe		-			·																					
X - Other F - Fish		1			·					1									T^-			1			ł	
r - ran																										
				:													I									
Special instruc		SAF	ㅂ	F03 -	006			DATE	/REVISIO	NS:	1.1	411		.1. +		. 4	, 20. – 1	103			Lionv	ille Lab	oraton	y Use C	Only	
Run M		QC -(-				五年,		<u></u> _		2									-	iamples) Shipp land De \irbili #	ed <u>V</u> elivered		1) P: 2)	amper Re) Preser ackage) Unbroi 'ackage	nt erco or oken on	outer r N Outer
In orga ① :-	I-C - C(' Ł' NO) '	NO2, P	10 4, 50 ¢	, 2NH3N	(, lph _, I	cMo.			. 4. <u> </u>								···	3	2) Ambio 3) Recei Conditio	ived in	Good	3)) Prese	nt on S	Sample or N
								_	-	. 6. <u></u>										i) Samp	$\overline{}$. , .,) Unbro Sample		
Relinquishe	d	Received	d		T'	Re	elinqui	shed		Received		Data	T		Die	crepan	cies Re	itween	- -J ;	roperty		rved or N	С	OC/Re	cord Pr	resent
by		by		Date	Time		by	יאפי	SITE	<u>by ()</u>	RIGIN	MAL	 "	me	Sar	nples L	abels a	and		5) Rece	\smile		U	Jpon Sa	Apripie H	
Droie	18	~₹ / \		<u> ই-রা-জ</u>	T. —	┨├—		is.		R	WR I	IE	4_			TES:		or A	<i>'</i> '	- loiding	(\mathcal{Y})	or N	C T	Cooler Temp	D .3	, ∑ .c
HOUEX	\ V	7 } \bar{\bar{\bar{\bar{\bar{\bar{\bar{	لصن	64.03	0925] [L_	土	839	13:	<u> </u>	4 5.	<u>35£</u>	<u> </u>	1000	.75	2/2	j
	·	11			-															41	-7 G	דת(いとづ	13	31/	/በ ኃ

8393 5074 5238

Delineary Properties Delineary Properties	,								,					
Chapter Contributor Chapter Contributor	FH-Central Plateau	Project	CI	HAIN OF CUST	ODY/S	AMPLE	ANALY	SIS	REQUEST		F03-	-006-107	Page 1 c	of 1
Sample No. Sample No. Matrix * Sample Date Sample Total Control State of the Sample Date Sample No. Matrix * Sample Date Sample No. Matrix * Sample Date Sample No. Matrix * Sample Date Sample No. Matrix * Sample Date Sample Total Sample No. Matrix * Sample Date Sample Date Sample No. Matrix * Sample Date Sample Date Sample No. Matrix * Sample Date Sample	Collector Johansen/Pope/Pfister		Compa	eny Contact	Telephor	se No.		1	Project Coordina	tor P	rice Code	8N		
SAMPLE ANALYSIS Sample No. Matrix * Sample Doe Sample Total Section By Sample By Sam	Project Designation 200-PW-2/200-PW-4 OU - Bon	ehole Soil Sampling			.)ays
Sepecial Handling and/or Storage No. of Container 1 1 1 1 1 1 1 1 1	Ice Chest No.	01-03	Field I				10							
POSSIBLE SAMPLE HAZARDS/REMARKS 19-13-19 19-19 19-19 Preservation Coal 4C Coa	Shipped To -WO 5-27-C	OB PLECCA	Offsite	Property No.	SR	1071	92_		Bill of Lading/A	ir Bill No	N	A- '		
No. of Container(s) Volume Somple (1) Sample No. Sample No. Sample No. Matrix* Sample No. Matrix* Sample No. Matrix* Sample No. Sample No. Matrix* Sample No. S	POSSIBLE SAMPLE HAZAR	DS/REMARKS BIZ	133. 817 134	5->7 Preservation	Cool 4C	Cool 4C	None	Cool	4C Cool 4C	Coal 4C	Cool 4C	None	None	None
No. of Container(s) Volume Somple (1) Sample No. Sample No. Sample No. Matrix* Sample No. Matrix* Sample No. Matrix* Sample No. Sample No. Matrix* Sample No. S	1700101041Ca	אוועוטיטי	~ BOB3)	Type of Container	åG	aG	a/G	аG	aG /	aG	aG	aG	åG	25
SAMPLE ANALYSIS See how (1) is not	Special Handling and/or Sto	orage (D) M	() () () ()	No. of Container(s)	1	1	1	1	1 /	1	1	1		2
Sample No. Matrix * Sample Date Sample Time Sample No. Matrix * Sample Date Sample Time Sample No. Matrix * Sample Date Sample Time Solid 5 77 0.3 1000 X X X X X X X X X X X X X X X X X				Volume	60mL	125ml	60mL,	60m	L 125ml	60mL	60mL	60mL	69	L
CHAIN OF POSSESSION CHAIN OF POSSESSION CHAIN OF POSSESSION CHAIN OF POSSESSION CHAIN OF POSSESSION CHAIN OF POSSESSION CHAIN OF POSSESSION Sign/Print Names CHAIN OF POSSESSION Sign/Print Names CHAIN OF POSSESSION Sign/Print Names CHAIN OF POSSESSION Sign/Print Names CHAIN OF POSSESSION Sign/Print Names CHAIN OF POSSESSION Sign/Print Names CHAIN OF POSSESSION Sign/Print Names CHAIN OF POSSESSION Sign/Print Names CHAIN OF POSSESSION Sign/Print Names SPECIAL INSTRUCTIONS The laboratory is to achieve a detection limit of 50.0 pC/lg for Carbon-14. ** The laboratory is to relieve to be detection limit of 50.0 pC/lg for Carbon-14. ** The laboratory is to report to be knowness and deed range compounds from WTPH-D analysis. The laboratory is to achieve a detection limit of 50.0 pC/lg for Carbon-14. ** The laboratory is to report to be knowness and deed range compounds from WTPH-D analysis. The laboratory is to achieve a detection limit of 50.0 pC/lg for Carbon-14. ** The laboratory is to report to be knowness and deed range compounds from WTPH-D analysis. The laboratory is to achieve a detection limit of 50.0 pC/lg for Carbon-14. ** The laboratory is to report to be knowness and deed range compounds from WTPH-D analysis. Security Systems of the compounds from WTPH-D analysis. Social WS-A-data of the compounds from WTPH-D analysis. Social WS-A-data of the compounds from WTPH-D analysis. Social WS-A-data of the compounds from WTPH-D analysis. Social WS-A-data of the compounds from WTPH-D analysis. Social WS-A-data of the compounds from WTPH-D analysis. Social WS-A-data of the compounds from WTPH-D analysis. Social WS-A-data of the compounds from WTPH-D analysis. Social WS-A-data of the compounds from WTPH-D analysis. Social WS-A-data of the compounds from WTPH-D analysis. Social WS-A-data of the compounds from WTPH-D analysis. Social WS-A-data of the compounds from WTPH-D analysis. Social WS-A-data of the compounds from WTPH-D analysis. Social WS-A-data of the compounds from WTPH		SAMPLE ANAL	YSIS		Special Instructions. Add VOA	Special Instructions	Special		7196 Special			Special	Secircle (6) in Secial Interructions.	Tritium - H3
CHAIN OF POSSESSION Sign/Friet Names CHAIN OF POSSESSION Sign/Friet Names Received By/Stored in Date/Time	Sample No.	Matrix *	Sample Date	Sample Time									diament street	\$ 69 S. Y
CHAIN OF POSSESSION Sign/Print Names Relinquished By/Removed From Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time D	B17116 F 5:2 8:43	SOIL	5-27-0	3 1030	X	1/×	\times	_ \		- X	- ×.	/		
CHAIN OF POSSESSION Sign/Prist Names CHAIN OF POSSESSION Sign/Prist Names SPECIAL INSTRUCTIONS ** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. ** The laboratory is to report both kerosene and disease irrage compounds from WTPH-D analysis. ** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. ** The laboratory is to report both kerosene and disease irrage compounds from WTPH-D analysis. ** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. ** The laboratory is to report both kerosene and disease irrage compounds from WTPH-D analysis. ** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. ** The laboratory is to report both kerosene and disease irrage compounds from WTPH-D analysis. ** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. ** The laboratory is to report both kerosene and disease irrage compounds from WTPH-D analysis. ** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. ** The laboratory is to report both kerosene and disease irrage compounds from WTPH-D analysis. ** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. ** The laboratory is to report both kerosene and disease irrage compounds from WTPH-D analysis. ** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. ** The laboratory is to report both kerosene and disease in the passes of the policy of t	817123	- joii	5-27-0	3 1030	λ_	1/ X	×		$\times X $	X	X,	T	1	
Relinquished By/Removed From Date/Time Dat	PIJ BUIDD	5611	5-27-03	3 1110	X	X	×		X	X	 × -	-	misa	7-05
Relinquished By/Removed From Date/Time Dat														Matrix *
V INSTRICT DY	Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From	Date/Time 19 Date/Time 19 Date/Time 19 Date/Time 19 Date/Time 19 Date/Time 19 Date/Time 19 Date/Time 19 Date/Time 19 Date/Time	Received By/Sto Received By/Sto Received By/Sto Received By/Sto Received By/Sto	ored in RC D or	Date/Time Date/Time Date/Time Date/Time Date/Time	7 report (1) (2) (2) (3) (3) (3) (4) (4) (5) (5) (6)	The laboratory is at both kerosene Alcohols, Glyco Semi-VOA - 82 I-Diesel Range - ICP Metals - 60 Metals - 6010 CIC Anions - 300 ii) - 9045; Total Gamma Spectrumas Spectrumas Spectrumas Spectrumas Copic - Additional Copic - Additional Copic - Additional - Isotopia Plutor - Technetium-99:	to achie and die ds, & K.c. 70A (TC WTPH- 10A (Supert V) 0.0 {Chlo Cyanide oscopy (os {Go war, Isc.	eve a detection limit of sel range compounds etones - 8015 {1-Buta Z.); Semi-VOA — 82:-D; TPH-Gasoline Raspertrace) (Arsenic, Brace Add-Oa) (Antimoride, Fluoride, Nitrate - 9010 Cesium-137, Cottantional Cesium-137, Cottan	from WTPf- nol, Diethyl 0A (Add-C) nge - WTPf- nrium, Cadrony, Berylli s, Nitrite, Pl 0, Europhy- 6, Radium-2 (sotopic The	ether, Ethylene n) (2-Butoxyet I-G nium, Chromius um, Bismuth, E sosphate, Sulfat E-132, Europius 28, Tm-126; T srium (Thorium	e glycol, Methar hanol, Tributyl m, Lead, Seleni toron, Copper, te); Ammonia - m-154; Europtu Total Oranium;	nol} phosphate}; um, Silver}; Nickel}; 350.3; pH m=133}, Americian-	8-Soil 8-Sodiment SO-Soild SI-Sodige W = Winter O-OB A-Air DS-Drum Soild DI-Drum Liqu T-Timme WI-Wige L-Liquid V-Vegenation X-Other
	SECTION	ethod			····-		<i>O</i> Disp	osed By		<u> </u>		2	Date/Time	

FH-Central Plateau Project	СН	IAIN OF CUST	ODY/S	AMPLE	ANALYS	SIS	REQUEST		F03	-006-133	Page 1 o	f 1
Collector Johansen/Pope/Pfister	Comps	ny Contact Iulstrom	Telepho 373-3	ne No.			Project Coordin TRENT, SJ	ator	Price Code	8N	Data Turn	i
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		ng Location B-12 (C3246); (0.5')					SAF No. F03-006	- 1	Air Quality		45 D	ays
Ice Chest No. EVEC - 02 . 402		ogbook No. -N-3361	_	COA 117504ES	10		Method of Ships Federal Expres					
Shipped To RECRA	Offsite	Property No.	030	278	<u> </u>		Bill of Lading/	Air Bill N	ه. چ	e e	OSPC	
POSSIBLE SAMPLE HAZARDS/REMARKS Potential Redioative		Preservation	Cool 4C	Cool 4C								
Tie To B17118		Type of Container	aG	aG	 							<u></u>
Special Handling and/or Storage	- 1	No. of Container(s)	1	1	 					 		
C0014c		Volume	60mL	60mL								<u></u>
SAMPLE ANALYSIS		<u></u>	Pesticides - 8081	Chloro- Herbicides - EPA8151								
		·					TILD:					
Sample No. Matrix * Sam	ple Date	Sample Time		magaine and an and an and an and an and an an and an an an an and an an an an an an an an an an an an an	1	4.22.0						
817187 SOIL 5-6	19-0	3 1115	X	X			131710			 		
					+ - +					-		
			<u> </u>							<u> </u>		
Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From Date/Time Date/Time Recei Relinquished By/Removed From Recei Relinquished By/Removed From Recei Relinquished By/Removed From Recei Relinquished By/Removed From Recei Relinquished By/Removed From Recei Relinquished By/Removed From Recei Relinquished By/Removed From Recei Recei Relinquished By/Removed From Recei	ved B y/Sto	red in FRC D Red in D	ate/Time ate/Time ate/Time ate/Time ate/Time ate/Time ate/Time	515 (000 03		e echie	ONS suc. a detection limits at both kerosene and				alvsis. 5	Matrix Social
TINAL SAMPLE Disposal Method DISPOSITION					Dispos	ed By	······································			· _	Date/Time	

FH-Central Plate	au Project	C	HAIN OF CUST	ODY/S	AMPLE	EANALY	SIS R	EQUEST	F	03-006-134	Page 1 c	f 1
Collector Johansen/Pope/Pfister		Comp	any Contact Hulstrom	Telephor 373-39	ne No.		Pr	roject Coordinator RENT, SJ	Price Cod	e 8N	Data Turi	l
Project Designation 200-PW-2/200-PW-4 OU - I	Borehole Soil Sampling		ling Location -B-12 (C3246); (14.5'-17	7')				AF No. 03-006	Air Qual	lity 🗌	45 L	Days
ice Chest No.	202.402	Field HN	Logbook No. F-N-3361		COA 117504ES	510		lethod of Shipment Federal Express	-			
Shipped To TWOS	5-29-03 Reco	Offsit	e Property No.	030	-27	8	В	Bill of Lading/Air B	ill No.	SEE	FSPC	
POSSIBLE SAMPLE HAZ	ARDSTREMARKS R. A. D. T. I.	•	Preservation	Cool 4C	Cool 4C	Cool 4C	None		om			
Special Handling and/or	•		Type of Container	aG	aG	aG	aG	1 5	ıG			
	0140		No. of Container(s)	l 60mL	1 125mL	60mL	l 60mL	a/1_	l DmL	_	<u> </u>	
			Volume					57		<u>. </u>		
	SAMPLE ANAL	.YSIS		See item (1) if Special Instructions.	See item (2) is Special Instructions.	353.2; Oil &	See item (3) Special Instructions	Special	.m - H3	Tin	5 .	
Sample No.	Matrix *	Sample Date	Sample Time							Tiet		
B171B8	SOIL	5-29-0	3 1250	X	1-1/	X	/			יורוט	9	
				†								
CHAIN OF POSSESSI	Date/Time 15		ored in ERC	Date/Time		CIAL INSTR	to schicus	dS a detection limit of 50.0 oth kerosene and diesel	pCilg for Corbo	11-1-1-1	-24.03	Matrix * s=soit
Relinquished By/Removed From R. F. h./ Relinquished By/Removed From B. 372 8	5-290	T Received By/St	wedIn 1 了?て8 5・8	Date/Time / S	700 (1) 700 (2)	Alcohols, Glyco Semi-VOA - 82' H-Diesel Range - Germa Spectro	ols, & Keton 70A (TCL); WTPH-D;	ies - 8015 {1-Butanol, I , Semi-VOA — 8270A (, TPH-Gasoline Range - inan-137, Cobalt-60, Eu n-134, Radium-226, Rac	Piethyl ether, Ethy Add-On) (2-Bute WTPH-G	ylene glycol, Methar oxyethanol, Tributyl	noi} phosphate};	SE=Sodiment SO=Solid SI=Shadge W = Water O=Oil Ai DSO Type Solida
Relinquished By/Removed From R. C. LOOL R. C.	Pare/Time 100	Received By/St	red in	Date/Time	(4)	trinia Spec - Add- ; Isotopic Pluton Technetium-99; ; Nickel 63; Nep	ium Isotopi Smontium I	ic Uranium 89,90 Total Sr. Icotop		riani-232), Carbon-		T-TESAC WI-Wipe L-Liquid V-Vegetation X-Other
Relinquished By/Removed From Relinquished By/Removed From	Date/Time	Received By/St	Driver 6-4	03/05/3 Date/Time	5-		٠					N-Valley
LABORATORY Received SECTION	Ву	L		1	Title						Date/Time	
FINAL SAMPLE Disposal DISPOSITION	Method					Dispo	osed By				Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

IENT: TNU Harnford

chase Order/Project:

DATE: 5.31.03

F03-004 F# / SOW# / Release #:

poratory SDG #:

n5L537 TE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION WYes D No Custody seals on coolers or shipping DNA D see Comment container intact, signed and dated? Outside of coolers or shipping containers are ∑/Yes ∶ □ No DNA Di see Comment # free from damage? Airbill # recorded? D No DNA ☐ see Comment # All expected paperwork received (coc and D No D N/A other client specific: historical data D see Comment # alpha/bets or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) Sample containers are intact? D Yes □ No D N/A Disee Comment # Custody seals on sample containers intact, D No. DINA D see Comment # signed and dated? All samples on coc received? D No 🛱 Yes D N/A D see Comment # D No DNA. · D see Comment # All sample label information matches coc? 8. Laboratory QC samples designated on coc? D No DNA D see Comment # (QC stickers placed on bottles?) 10. Shipment meets LvLl Sample Acceptance Q/Yes D No DNA . Disee Comment # Policy? (identify all bottles not within policy. See reverse side for policy) 11. Where applicable, bar code labels are D Yes D No D WW D see Comment # affixed to coc? D Yes DNo D N/A 12. coc signed and dated? D see Comment # 13. coc will be faxed or emailed to client? E Yes D No D N/A D see Comment # 14. Project Manager/Client contacted E N/A D Yes □ No ☐ see Comment # concerning discrepancies? (name/date)

Cooler # / temp (°C) and Comments:

ERC 01-030 /0.316

Laboratory Sample Custodian:

Laboratory Project Manager:



Lionville Laboratory, Inc. INORGANIC ANALYTICAL DATA PACKAGE FOR TNUHANFORD F03-006 H2250

DATE RECEIVED: 06/04/03 and 05/31/03

LVL LOT # :0305L537

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B17122						
% SOLIDS	001	s	03L%S079	05/27/03	06/09/03	06/10/03
% SOLIDS	001 REP	S	03L%S079	05/27/03	06/09/03	06/10/03
CHLORIDE BY IC	001	S	03LICB38	05/27/03	06/12/03	06/12/03
CHLORIDE BY IC	001 REP	s	03LICB38	05/27/03	06/12/03	06/12/03
CHLORIDE BY IC	001 MS	S	03LICB38	05/27/03	06/12/03	06/12/03
FLUORIDE BY IC	001	S	03LICB38	05/27/03	06/12/03	06/12/03
FLUORIDE BY IC	001 REP	S	03LICB38	05/27/03	06/12/03	06/12/03
FLUORIDE BY IC	001 MS	S	03LICB38	05/27/03	06/12/03	06/12/03
NITRITE BY IC	001	S	03LICB38	05/27/03	06/12/03	06/12/03
NITRITE BY IC	001 REP	S	03LICB38	05/27/03	06/12/03	06/12/03
NITRITE BY IC	001 MS	S	03LICB38	05/27/03	06/12/03	06/12/03
NITRATE BY IC	001	S	03LICB38	05/27/03	06/12/03	06/12/03
NITRATE BY IC	001 REP	S	03LICB38	05/27/03	06/12/03	06/12/03
NITRATE BY IC	001 MS	S	03LICB38	05/27/03	06/12/03	06/12/03
TOTAL CYANIDE	001	S	03LCA53	05/27/03	06/07/03	06/07/03
TOTAL CYANIDE	001 REP	S	03LCA53	05/27/03	06/07/03	06/07/03
TOTAL CYANIDE	001 MS	S	03LCA53	05/27/03	06/07/03	06/07/03
PHOSPHATE BY IC	001	S	03LICB38	05/27/03	06/12/03	06/12/03
PHOSPHATE BY IC	001 REP	S	03LICB38	05/27/03	06/12/03	06/12/03
PHOSPHATE BY IC	001 MS	s	03LICB38	05/27/03	06/12/03	06/12/03
CHROMIUM VI	001	S	03LVI048	05/27/03	06/12/03	06/12/03
SULFATE BY IC	001	S	03LICB38	05/27/03	06/12/03	06/12/03
SULFATE BY IC	001 REP	s	03LICB38	05/27/03	06/12/03	06/12/03
SULFATE BY IC	001 MS	S	03LICB38	05/27/03	06/12/03	06/12/03
NITRATE NITRITE	001	S	03LN3A30	05/27/03	06/16/03	06/16/03
NITRATE NITRITE	001 REP	S	03LN3A30	05/27/03	06/16/03	06/16/03
NITRATE NITRITE	001 MS	S	03LN3A30	05/27/03	06/16/03	06/16/03
AMMONIA	001	S	03LAMA15	05/27/03	06/10/03	06/10/03
OIL & GREASE BY GRAV	001	S	03LOG028	05/27/03	06/24/03	06/26/03
PH	001	S	03LPH039	05/27/03	06/07/03	06/07/03
PH	001 REP	S	03LPH039	05/27/03	06/07/03	06/07/03
B171B7						
% SOLIDS	002	S	03L%S079	05/29/03	06/09/03	06/10/03

01

Lionville Laboratory, Inc. INORGANIC ANALYTICAL DATA PACKAGE FOR TNUHANFORD F03-006 H2250

DATE RECEIVED: 06/04/03 and 05/31/03				LVL LOT # :0305L537			
CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	
B171B8							
% SOLIDS	003	s	03L%S079	05/29/03	06/09/03	06/10/03	
CHLORIDE BY IC	003	S	03LICB38	05/29/03	06/12/03	06/12/03	
FLUORIDE BY IC	003	S	03LICB38	05/29/03	06/12/03	06/12/03	
NITRITE BY IC	003	S	03LICB38	05/29/03	06/12/03	06/12/03	
NITRATE BY IC	003	S	03LICB38	05/29/03	06/12/03	06/12/03	
TOTAL CYANIDE	003	S	03LC054	05/29/03	06/11/03	06/11/03	
PHOSPHATE BY IC	003	S	03LICB38	05/29/03	06/12/03	06/12/03	
CHROMIUM VI	003	S	03LVI048	05/29/03	06/12/03	06/12/03	
CHROMIUM VI	003 REP	S	03LVI048	05/29/03	06/12/03	06/12/03	
CHROMIUM VI	003 MS	S	03LVI048	05/29/03	06/12/03	06/12/03	
CHROMIUM VI	003 MSD	S	03LVI048	05/29/03	06/12/03	06/12/03	
SULFATE BY IC	003	s	03LICB38	05/29/03	06/12/03	06/12/03	
NITRATE NITRITE	003	S	03LN3A30	05/29/03	06/16/03	06/16/03	
AMMONIA	003	s	03LAMA15	05/29/03	06/10/03	06/10/03	
AMMONIA	003 REP	S	03LAMA15	05/29/03	06/10/03	06/10/03	
AMMONIA	003 MS	S	03LAMA15	05/29/03	06/10/03	06/10/03	
OIL & GREASE BY GRAV	003	s	03LOG028	05/29/03	06/24/03	06/26/03	
OIL AND GREASE BY GR	003 REP	S	03LOG028	05/29/03	06/24/03	06/26/03	
OIL AND GREASE BY GR	003 MS	s	03LOG028	05/29/03	06/24/03	06/26/03	
РН	003	S	03LPH039	05/29/03	06/07/03	06/07/03	
AB QC:							
CHLORIDE BY IC	MB1	s	03LICB38	N/A	06/12/03	06/12/03	
CHLORIDE BY IC	MB1 BS	S	03LICB38	N/A	06/12/03	06/12/03	
FLUORIDE BY IC	MB1	S	03LICB38	N/A	06/12/03	06/12/03	
FLUORIDE BY IC	MB1 BS	s	03LICB38	N/A	06/12/03	06/12/03	
NITRITE BY IC	MB1	S	03LICB38	N/A	06/12/03	06/12/03	
NITRITE BY IC	MB1 BS	S	03LICB38	N/A	06/12/03	06/12/03	
NITRATE BY IC	MB1	S	03LICB38	N/A	06/12/03	06/12/03	
NITRATE BY IC	MB1 BS	S	03LICB38	N/A	06/12/03	06/12/03	
TOTAL CYANIDE	LCS L	s	03LCA53	N/A	06/07/03	06/07/03	
TOTAL CYANIDE	LCS L	Š	03LCA53	N/A	06/07/03	06/07/03	
TOTAL CYANIDE	MB1	S	03LCA53	N/A	06/07/03	06/07/03	



Analytical Report

Client: TNU-HANFORD F03-006 H2250

Date Received: 05-31-03;06-04-03

W.O.#: 11343-606-001-9999-00

LVL#: 0305L537

INORGANIC NARRATIVE

1. This narrative covers the analyses of 3 soil samples.

- 2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.
- 3. The sample holding times as required by the method and/or contract were met.
- 4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- 5. The method blanks were within the method criteria.
- 6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Ammonia and Oil and Grease were within the 20% Relative Percent Difference (RPD) control limit.
- 7. The matrix spike recoveries for Chloride, Fluoride, Nitrite, Nitrate, Total Cyanide, Phosphate, Sulfate, Nitrate Nitrite, Chromium VI, Ammonia and Oil and Grease were within the 75-125% control limits.
- 8. The replicate analyses for Percent Solids, Chloride, Fluoride, Nitrite, Nitrate, Total Cyanide, Phosphate, Sulfate, Nitrate Nitrite, pH, Chromium VI, Ammonia and Oil and Grease were within the 20% RPD control limit.
- 9. Results for solid samples are reported on a dry weight basis.

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 18 pages.

- 10. The result for Oil and Grease sample B17122 may be biased high as the resultant residue from the freon extraction did not reach dryness at 70°C as suggested by the method and despite additional nitrogen sweeps, gentle heating and desiccation time.
- 11. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

njp\i05-537

<u>53-08-03</u>

Date



Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	<u>ASTM</u>	<u>SW846</u>	<u>OTHER</u>
% Ash	D2216-80		
% Moisture	— D2216-80		ILMO4.0 (e)
% Solids			ILMO4.0 (e)
% Volatile Solids	D2216-80		
ASTM Extraction in Water	D3987-81/85		
BTU	 D240-87		
CEC	_	9081	c
Chromium VI		√3060A/7196A	
Corrosivity by coupon by pH		1110(mod) 9045C	
Cyanide, Total		V 9010B / 9014	ILMO4.0 (e)
Cyanide, Reactive		Section 7.3/9014	_ -
Halides, Extractable Organic		9020B	EPA 600/4/84-008
Halides, Total		9020B	EPA 600/4/84-008
EP Toxicity		1310A	
Flash Point		1010	
Ignitability		1010	
Oil & Grease		√ 9071A	1413.1 (mod.)
Carbon, Total Organic		9060	Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	D240-87(mod)	5050	
Petroleum Hydrocarbons, Total Rec	overable	9071	EPA 418.1
pH, Soil		✓ 9045C	
Sulfide, Reactive		Section 7.3/9030B	
Sulfide		9030B(mod)	
Specific Gravity	D1429-76C/	D5057-90	
Sulfur, Total		9056	
Synthetic Preparation Leach		1312	
Paint Filter		9095A	
Other: Cheoride, Fluoride Mit	rite Method: E.	P4 300.0 (mod.)	
Other: Attate Rhosphate Sul	fate Method		<u>.</u>
Atrate Atrite		PA 353.2 (mod.)	
ammonia	ET	PA 350.3	

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- * = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LC = Laboratory Control Sample.

NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

- ASTM Standard Methods.
- 2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
- 3. Test Methods for Evaluating Solid Waste (USEPA SW-846).
- a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).
- b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).
- c. <u>Method of Soil Analysis</u>, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).
- d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
- e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
- f. Code of Federal Regulations.

INORGANICS DATA SUMMARY REPORT 06/26/03

CLIENT: TNUHANFORD F03-006 H2250 WORK ORDER: 11343-606-001-9999-00

					RBPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
	*==+===============		******			
-001	B17122	* Solids	85.4	4	0.01	1.0
		Chloride by IC	1.5 u	MG/KG	1.5	1.0
		Fluoride by IC	1.5 u	MG/KG	1.5	1.0
		Nitrite by IC	1.46 u	MG/KG	1.46	1.0
		Nitrate by IC	1.46 u	MG/KG	1.46	1.0
		Cyanide, Total	0.53 u	MG/KG	0.53	1.0
		Phosphate by IC	2.8	MG/KG	1.5	1.0
		Chromium VI	0.47 u	MG/KG	0.47	1.0
		Sulfate by IC	7.1	MG/KG	1.5	1.0
		Nitrate Nitrite	0.23 u	MG/KG	0.23	1.0
		Ammonia, as N	6.9 u	MG/KG	6.9	1.0
		Oil & Grease Gravimetri	59400	MG/KG	780	1.0
		рн	5.5	SOIL PH	0.01	1.0
-002	B171B7	% Solids	94.5	•	0.01	1.0
-003	B171B8	% Solids	95.0	•	0.01	1.0
		Chloride by IC	7.3	MG/KG	1.3	1.0
		Fluoride by IC	1.3 u	MG/KG	1.3	1.0
		Nitrite by IC	1.32 u	MG/KG	1.32	1.0
		Nitrate by IC	57.8	MG/KG	2.64	2.0
		Cyanide, Total	0.48 u	MG/KG	0.48	1.0
		Phosphate by IC	1.3 u	MG/KG	1.3	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
		Sulfate by IC	467	MG/KG	26.4	20.0
		Nitrate Nitrite	16.2	MG/KG	1.0	5.0
		Ammonia, as N	6.5 u	MG/KG	6.5	1.0
		Oil & Grease Gravimetri	702 u	MG/KG	702	1.0
		рH	9.1	SOIL PH	0.01	1.0

INORGANICS METHOD BLANK DATA SUMMARY PAGE 06/26/03

CLIENT: TNUHANFORD F03-006 H2250 WORK ORDER: 11343-606-001-9999-00

HOIGE ORDE	M. 11040 000 001 0010					
					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTÉ	RESULT	Units	LIMIT	FACTOR
	************		******		20222322	
BLANK10	03LICB38-MB1	Chloride by IC	1.2 u	MG/KG	1.2	1.0
		Fluoride by IC	1.2 u	MG/KG	1.2	1.0
		Nitrite by IC	1.25 u	MG/KG	1.25	1.0
		Nitrate by IC	1.25 u	MG/KG	1.25	1.0
		Phosphate by IC	1.2 u	MG/KG	1.2	1.0
		Sulfate by IC	1.2 u	MG/KG	1.2	1.0
BLANK1	O3LCA53-MB1	Cyanide, Total	0.50 u	MG/KG	0.50	1.0
BLANK10	03LVI048-MB1	Chromium VI	0.40 u	MG/KG	0.40	1.0
BLANK10	03LN3A30-MB1	Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0
BLANK10	03LAMA15-MB1	Ammonia, as N	5.0 u	MG/KG	5.0	1.0
BLANK10	03LOG028-MB1	Oil & Grease Gravimetri	667 u	MG/KG	667	1.0
BLANK1	03LC054-MB1	Cyanide, Total	0.50 u	MG/KG	0.50	1.0

INORGANICS ACCURACY REPORT 06/26/03

CLIENT: TNUHANFORD F03-006 H2250 WORK ORDER: 11343-606-001-9999-00

			SPIKED	INITIAL	SPIKED		DILUTION
SAMPLE	SITE ID	ANALYTE	SAMPLE	RESULT	AMOUNT	♦ RECOV	factor (SPK)
	*****	***************	******		****==	****	
-001	B17122	Chloride by IC	30.1	0.76	29.3	100.3	1.0
		Fluoride by IC	29.7	0.0	29.3	101.6	1.0
		Nitrite by IC	30.5	1.46u	29.3	104.1	1.0
		Nitrate by IC	30.0	1.46u	29.3	102.6	1.0
		Cyanide, Total	5.37	0.53u	5.46	98.0	1.0
		Phosphate by IC	32.4	2.8	29.3	101.1	1.0
		Sulfate by IC	37.1	7.1	29.3	102.4	1.0
		Nitrate Nitrite	6.0	0.23u	6.0	100	1.0
-003	B171B6	Soluble Chromium VI	4.2	0.42u	4.2	92.2	1.0
		Insoluble Chromium VI	1180	0.42u	1350	87.4	100
		Ammonia, as N	250	6.5 u	261	96.0	1.0
		Oil & Grease Gravimetr	8050	702 u	7990	100.7	1.0
BLANK10	03LICB38-MB1	Chloride by IC	24.6	1.2 u	25.0	98.4	1.0
		Fluoride by IC	24.7	1.2 u	25.0	98.8	1.0
		Nitrite by IC	24.6	1.25u	25.0	98.5	1.0
		Nitrate by IC	25.0	1.25u	25.0	100.0	1.0
		Phosphate by IC	25.1	1.2 u	25.0	100.3	1.0
		Sulfate by IC	25.0	1.2 u	25.0	100.1	1.0
BLANK10	03LVI048-MB1	Soluble Chromium VI	3.9	0.40u	4.0	98.6	1.0
		Insoluble Chromium VI	1120	0.40u	1180	95.1	100
BLANK10	03LN3A30-MB1	Nitrate Nitrite	5.2	0.20u	5.0	103.4	1.0
BLANK10	03Tama15-MB1	Ammonia, as N	195	5.0 u	200	97.5	1.0
		Ammonia, as N MSD	208	5.0 u	200	104.2	1.0
BLANK10	03LOG028-MB1	Oil & Grease Gravimetr	7450	667 u	7590	98.2	1.0
		Oil & Grease - Grav M	7520	667 u	7590	99.1	1.0

INORGANICS DUPLICATE SPIKE REPORT 06/26/03

CLIENT: TNUHANFORD F03-006 H2250

LVL LOT #: 0305L537

WORK ORDER: 11343-606-001-9999-00

SPIKB#1	SPIKE#2
---------	---------

SAMPLE	SITE ID	ANALYTE	*RECOV	*RECOV	*DIFF
			*****	===#62	
BLANK10	03LAMA15-MB1	Ammonia, as N	97.5	104.2	6.7
BLANK10	03LOG028-MB1	Oil & Grease - Grav	98.2	99.1	0.89

INORGANICS PRECISION REPORT 06/26/03

CLIENT: TNUHANFORD P03-006 H2250

WORK ORDER: 11343-606-001-9999-

			INITIAL			DILUTION
SAMPLE	SITE ID	ANALYTE	result	REPLICATE	RPD	FACTOR (REP)
*****	**********			********		*****
-001RBP	B17122	% Solids	85.4	85.5	0.11	1.0
		Chloride by IC	1.5 u	1.5 u	NC	1.0
		Fluoride by IC	1.5 u	1.5 u	NC	1.0
		Nitrite by IC	1.46u	1.46u	NC	1.0
		Nitrate by IC	1.46u	1.46u	NC	1.0
		Cyanide, Total	0.53u	0.58u	NC	1.0
		Phosphate by IC	2.8	2.5	10.1	1.0
		Sulfate by IC	7.1	6.9	2.5	1.0
		Nitrate Nitrite	0.23u	0.22u	NC	1.0
		pН	5.5	5.5	0.2	1.0
-003REP	B171B8	Chromium VI	0.42u	0.42u	NC	1.0
	,	Ammonia, as N	6.5 u	6.5 u	NC	1.0
		Oil & Grease Gravimetri	702 u	702 u	NC	1.0

INORGANICS LABORATORY CONTROL STANDARDS REPORT 06/26/03

CLIENT: TNUHANFORD F03-006 H2250

WORK ORDER: 11343-606-001-9999-00

,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
			SPIKED	SPIKED		
SAMPLE	SITE ID	ANALYTE	SAMPLE	AMOUNT	UNITS	*RECOV
****	*************	***********				
LCSS1	03LCA53-LCS1	Cyanide, Total LCS	1.90	2.0	MG/KG	94.9
LCSS2	03LCA53-LCS2	Cyanide, Total LCS	10.2	10.0	MG/KG	101.7
LCSS1	03LC054-LCS1	Cyanide, Total LCS	1.95	2.0	MG/KG	97.4
LCSS2	03LC054-LCS2	Cvanide, Total LCS	10.3	10.0	MG/KG	102.6

Custody Transfer Record/Lab Work Request Page 1 of 1 Lionville Laboratory Use Only FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS 0305L537 Client TNU-Hanford F03-006 Refrigerator # Liquid Est. Final Proj. Sampling Date #/Type Container Project # 11343-606-001-9999-00 Solid ladlag Liquid Project Contact/Phone # ___ Volume Lionville Laboratory Project Manager Ordstte Quanda 14 60 60 Solid Preservatives TAT 3000 INORG **ORGANIC** Date Rec'd 5.31.03/64.03 7-4.03 NO STEER SE ANALYSES REQUESTED 4-30-03 Lionville Laboratory Use Only Matrix MATRIX CODES: Nate Time Lah Chosen Matrix Client ID/Description S - Soil Collected | Collected な SE - Sediment SO - Solid MS MSD SL - Sludge XIVOVOL W - Water B17122 5.27.03 1110 $|\infty|$ 0 - Oil Air B171B7 529031115 DS - Drum B171 B8 5.29.03 1250 DL - Drum: Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish DATE/REVISIONS: SAF # F03-006 Special Instructions: 6-5-03 , Per Client Add miles + amon to - 003 Lionville Laboratory Use Only Run Matrix QC (do not use -001) The Samples were; Tamper Resistant Seal was: 1) Shipped Y or 1) Present ex Outer Hand Delivered _____ Package () or N MET () = RCRA + Sb. Be. Bi. B. Cu. Ni Airbill # ___ 2) Unbroken on Outer Package (Y) or N ZNORGE O = IC-CI, F. NO, NOZ, PO, SOK, INHIN, LPH, ICMO _______4. 2) Ambient of Chilled 3) Present on Sample (Y) or N 3) Received in Good Sample B171B8 recot 6-4-03 Condition Y or N 4) Unbroken on Sample Y or N COC/Record Present 4) Samples Properly Preserved Relinquished Received Relinquished Received Discrepancies Between (Y) or N Time Time Upon Sample Rec't by ORIGINA? Samples Labels and 5) Received Within COC Record? Y or A Holding Tirons

Y or N Drix 15-31-08 11:35 NOTES: Temp. **5.3** °C 9mith 164.03 10925 # 8393 5014 5238

(6) YOA BNA PIPUS FION HOWARD -

#7907 9893 7339 10 2ºL

FH-Central Plateau Project			IAIN OF CUST	'ODV/S	AMPLE	LANAL	VSIS I	REQUEST	,	F03	-006-107	Page 1	of 1	•	
Collector Johansen/Pope/Pfister	u i roject	Compa	ny Contact Iulstrom	Telepho 373-3	ne No.	771,1712		Project Coordis TRENT, SJ		Price Code	8N	Data Tur	_		
Project Designation 200-PW-2/200-PW-4 OU - Bo	rehole Soil Sampling		ng Location A-10 (C3247) 62.5-65 f	t				SAF No. F03-006		Air Quality		45 I	Days ———		
Ice Chest No.	01-03	Field I HNI	ogbook No. -N-3361		COA 117504ES	310		Method of Ship Federal Expre							
Shipped To W55-77- EBERLINE SERVICES (For	03 Recra	Offsite	Property No.	SR	1071	92_		Bill of Lading/	Air Bill	No. V	A- '		ı ———	_	
POSSIBLE SAMPLE HAZARDS/REMARKS 19133; POSSIBLE SAMPLE HAZARDS/REMARKS 19133; POSSIBLE SAMPLE HAZARDS/REMARKS 19133; POSSIBLE SAMPLE HAZARDS/REMARKS 19133; POSSIBLE SAMPLE HAZARDS/REMARKS 19133; POSSIBLE SAMPLE HAZARDS/REMARKS 19133; POSSIBLE SAMPLE HAZARDS/REMARKS 19133; POSSIBLE SAMPLE HAZARDS/REMARKS 19133; POSSIBLE SAMPLE HAZARDS/REMARKS 19133; POSSIBLE SAMPLE HAZARDS/REMARKS 19133; POSSIBLE SAMPLE HAZARDS/REMARKS 19133; POSSIBLE SAMPLE HAZARDS/REMARKS 19133; POSSIBLE SAMPLE HAZARDS/REMARKS 19133; POSSIBLE SAMPLE HAZARDS/REMARKS 19133; POSSIBLE SAMPLE HAZARDS/REMARKS 19133; POSSIBLE SAMPLE HAZARDS/REMARKS 19133; POSSIBLE SAMPLE			80134		Cool 4C	Nome	Cool 40	Cool 4C	Cool 4	C Cool 4C	None	None	None	1	
FIQOIOICY ICO	以 IIとIO・t torage (10円III	4: 0000	Type of Container	aG	≇G	a.G	åG	aG	aG	aG	aG	aG	25/		
N/A			No. of Container(s)	fomL	1 125ml	1 60mL	60mL	1 / 125ml	60mi	. 60mL	60mL	60ml X	60mL	┨	
			Volume	See item (1) i	See item (2) is		Chromius		N02/N0		- See item (5) in	Secretary (6) in	Trisium - H3	-	
SAMPLE ANALYSIS					Special Instructions.	Special Instructions.	Hex - 719	Special Instructions.	353.2	413.1	Special Instructions	miructions.			
·			8260 F				الكا الم					[
Sample No.	Matrix *	Sample Date	Sample Time	- 1	2						<u> </u>				
B17116 (25 5,25 73	SOIL	5-27-02	1030	X	-/×	$\perp \times$	\times			' 	/	<u></u>			
BI 1123	<i>5</i> 0i1	5-27-0	3 1030	X	H-X	 ×	x	CHX	X	- X ,	77	VI 5-37-9		1	
PHJ BILIDY	56i I	5-27-03	olli. I	Х	X	X	X	\ \ \ \	}	< ×		11150	1-03	-	
				<u> </u>	 									1	
CHAIN OF POSSESSIO	t Names	SPECIAL INSTRUCTIONS									Matrix *	7			
Relinquished By/Removed Figure 1975 Date/Fime Poster/Fime 1975 Date/Fime Poster/Fime 1975 Date/Fime Poster/Fime 1975 Date/Fime 1975 Date/Fime Poster/Fime 1975 Date/Fime Poster/Fime 1975 Date/Fime Poster/Fime 1975 Date/Fime Poster/Fime 1975 Date/Fime Poster/Fime 1975 Date/Fime Poster/Fime 1975 Date/Fime 19											S-Sell SE-Seliment SQ-Solid				
Received By/Removed From Date/Time U.S. Received By/Stored In Date/Time U.S.											Si-Sludge				
Relinquished By/Removed From Date/Time 1000 Received By/Stored In Date/Time 1000 Received By/Stored										A=Air D\$=Dram Solids DL=Dram Liquids					
Relinquished By/Removed From		Received By/Sto	ived By/Stored.la Date/Time Mercury - 7471 - (CV) (4) IC Anions - 300.0 (Chlo (Soil) - 9045; Total Cyznide					Aloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Ammonia - 350.3; pH							
Relinanished Bulkerroved From	Date/Time	Received By/Sto	ifed By/Stored In Date/Time (3) Gamma Spectroscopy (4)						(Costum-137, Cobil(-50, Europium-132, Europium-154; Europium-135), x-oster 134, Ratium-226, Radium-228, Tin-125); Total Uranium, Americiam-						
Retinquished By/Removed From	Date/Time	Received By/Sio	ved By/Sjored In Date/Time (6) Technetium-99: Strontium-89:90 - Total Sr. Isotopic Thorium (Thorium-232): Wickel-1-3; Veol Dnicky-2-37								(5.8	70			
LABORATORY Received By SECTION Title [0] I left 5 (2) + (4) per Steve 1 per 1 Date/Time 0 1 left 5 (2) + (4) per Steve 1 per 1 03 03 04 03 04 03 04 04															
FINAL SAMPLE Disposal Method DISPOSITION Disposal Method															

FH-Central Plateau Project		C	CHAIN OF CUSTODY/SAMPLE ANALYSIS R						F03-006-134		Page 1	of 1
Collector Johansen/Pope/Pfister			Company Contact Telephone No. LC Huistrom 373-3928					Project Coordinator TRENT, SJ	Price Code	8N	Data Turnaround	
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling			ling Location i-B-12 (C3246); (14.5'-17		SAF No. F03-006			Air Quality 🗌		45 Days		
ice Chest No.	-02.402	HN	Field Logbook No. COA HNF-N-3361 1175			OA Method of Ship 7504ES10 Federal Expr						
Shipped To TWO!	5-29-03 Recr	Offsit	Offsite Property No. A030 -278					Bill of Lading/Air Bill No.				
POSSIBLE SAMPLE HAZ		Preservation	Cool 4C	Cool 4C	C Cool 4C	None	None No	/				
TieTo B171N9 Special Handling and/or Storage Cool 4 * -			Type of Container	aG	aG	G aG	аG	aG n ac	3			
			No. of Container(s)	1	1	1	1					
			Volume	60mL	125mL		60mL	57				
		See item (1) in Special Instructions.	See item (2) Special Instructions	353.2; Oil &	Special	in Se igen (4) in Tritium ppecial res fastructions.	1 · H3					
	SAMPLE ANAI				1 .	Hex - 7196	/	7		Ties	D:	!
Sample No.	Matrix *	Sample Date	Sample Time						24		and the contract of the contra	kan an ka sa ka ka ka
B171B8	SOIL	5-29-0	1250	X	 	 	<u> </u>	_		וורוש	9	
_ 	 			 	<u> </u>						<u> </u>	
CHAIN OF POSSESSI		Sign/Prin	ored in ERC D	ate/Time	55 °		to achieve	NS - a <i>detection limit of \$0.0 p</i> both kerosene and diesel ra			5-29-03 alysis.	Matrix * S-Soit SE-Sodiment
Relinquished By/Removed From	Date/Time 151	T Received By/Sto	元 7 D 5·2	ate/Time / 4	(2)	Semi-VOA - 827	70A (TCL)	nes - 8015 {1-Butanol, Die), Semi-VOA 8270A (Ac : TPH-Gasoline Range - W	ld-On) (2-Butoxy			SO=Solid SI=Shadge W = Water O=Oli
	Dute/Time 01	Received By/Sto	red in P. Fahll	ate/Time	03 (4)) Gamma Spectro amma Spec - Add-	ecopy (Ce on (Cesiu	sican-137, Cobalt-60, Euro m-134, Radium-226, Radii	pione 152, Europh	um-134, Europau Total Uranium;	ह्माउँउ); Ausaiciwa	
Relinquished By/Removed From	hlbn 6-30	1-60	<u> </u>	ate/Time	(4)	H; Isotopic Pluteni) Technetium-99; 19; Nickel 63; Nep	Strontium	80,90 Tetal Sr; Isotopie	Therium (Theriu	m-232), Carbon-i	14; Iodines -	T=TState WI=Wipe L=Liquid V=Vegetation
Relinquished By/Removed From	-40310925	Received My/\$19	mion 6-40	hate/Time 23/05/2 hate/Time	. !			_				X=Qther
Relinquished By/Removed From	Date/Time	Received By/Sto	Jen m		itle	·					Date/Time	<u> </u>
LABORATORY Received SECTION									<u> </u>			
FINAL SAMPLE Disposal	Method					Dispo	sed By				Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

IENT: TNU Hantow

chase Order/Project:

DATE: 5-31-03

F#/SOW#/Release #: F03-004

poratory SDG #:

3041537 TE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION Custody seals on coolers or shipping D/Yes D No DNA See Comment container intact, signed and dated? Outside of coolers or shipping containers are Σζ/Yes . D No DNA D see Comment # free from damage? Airbill # recorded? D No □ N/A D see Comment All expected paperwork received (coc and □ No DINA other client specific: historical data, ☐ see Comment # alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) Sample containers are intact? ₩Yes □ No DNA Sec Comment # Custody seals on sample containers intact, □ No. DNA ☐ see Comment # signed and dated? All samples on coc received? Ø Yes D No D N/A D see Comment # Ų Yes D No D N/A see Comment# All sample label information matches coc? Laboratory OC samples designated on coc? □ No D N/A D see Comment # (QC stickers placed on bottles?) 10. Shipment meets LvLl Sample Acceptance D No DNA . D see Comment # Policy? (identify all bonles not within policy. See reverse side for policy) 11. Where applicable, bar code labels are D Yes D No ΔNV Dace Comment # affixed to coc? Yes Yes D No Disce Comment # 12. coc signed and dated? 13. coc will be faxed or emailed to client? Yes. □ No DINA D see Comment # 14. Project Manager/Client contacted ET N/A □ Yes D No ☐ see Comment # concerning discrepancies? (name/date)

Cooler # / temp (°C) and Comments:

ERC 01-030/03'C

Laboratory Sample Custodian:

Laboratory Project Manager:

Dyman

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

IENT: TNU Hardora

chase Order/Project:

DATE: 6403

F#) SOW# / Release #: F03 -006

boratory SDG #:

TE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION Custody seals on coolers or shipping DXY es D No DNA D see Comment container intact, signed and dated? Outside of coolers or shipping containers are □ No DNA ☐ see Comment # free from damage? Airbill # recorded? D No DNA ☐ see Comment # All expected paperwork received (coc and DNA D No ☐ set Comment # other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) Sample containers are intact? D No D N/A D see Comment # Custody seals on sample containers intact, D No. DNA D see Comment # signed and dated? All samples on coc received? D No DNA See Comment # D No · □ see Comment# All sample label information matches coc? D N/A 8. Laboratory OC samples designated on coc? □ Yes D No V/K/Z See Comment # (QC stickers placed on bottles?) 10. Shipment meets LvLl Sample Acceptance D No D N/A □ see Comment # Policy? (identify all bottles not within policy. See reverse side for policy) 11. Where applicable, bar code labels are D Yes A/K/ZÍ D No See Comment # affixed to coc? DY es D No DWA D see Comment # 12. coc signed and dated? 13. coc will be faxed or emailed to client? Yes-D No D NA ☐ see Comment # 14. Project Manager/Client contacted ET N/A □ Yes □ No D see Comment # concerning discrepancies? (name/date)

Cooler # / temp (°C) and Comments:

ERE-02-402/0.2

Laboratory Sample Custodian:

Laboratory Project Manager: